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## FOREWORD.

The five articles in this volume have this in common that they are all first-hand accounts of experiments which are proving successful. As such they may serve to encourage other workers in the field of Indian education to face the difficulties which confront the educational reformer. The first three articles deal with experiments in the Dalton system in Indian schools, the fourth is an account of a rural school and training class run on novel lines and the last is a description of a very complete system of school medical inspection in a town of some thirty thousand inhabitants. The articles are printed in the form in which they were received. An introductory note on the Dalton system has been added, as the authors of the first three articles assume a knowledge of it which may not be common to all readers.

J. A. RICHEY,

*Educational Commissioner,  
with the Government of India.*

DELHI,

*12th November, 1926.*



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## A NOTE ON THE DALTON PLAN.

The Dalton Plan takes its name from the Dalton High School, Massachusetts, where it was first introduced by its originator, Miss Helen Parkhurst. A full description of the Plan will be found in Miss Parkhurst's book "Education on the Dalton System."

The Plan may be described as an attempt to organise the work of a large secondary school in accordance with recent tendencies in educational theory and practice. Education now tends to lay stress on the individual child as opposed to the class as the unit of teaching. Methods of class instruction have, since the time of Herbert, been developed to a very high standard of efficiency. But all systems of class teaching have certain serious defects inherent in the very nature of class teaching. Firstly, the rate of progress of the class during each lesson period and during each school year is regulated by the pace of its slower members: secondly, the initiative rests throughout with the teacher. The questioning, for example, is all on the side of the teacher while the same amount of time is spent by each pupil in the study of each subject. The better organised, the better disciplined the class, the less scope is there for originality on the part of any particular pupil and the less account is taken of individual aptitudes.

Noteworthy attempts to break away from the rigidity of the class system have been made by Dr. Montessori and by the pioneers of the "free discipline movement," while the "project method," which extends the unit of learning beyond the single lesson period, is also designed to encourage initiative on the part of the pupils. Although the followers of Dr. Montessori have achieved a certain success with small and backward children, all attempts to introduce individual teaching for older children in large schools have hitherto broken down over difficulties of organisation.

The Dalton Plan attempts to incorporate the better features of these modern movements in the work of the secondary school.

The first advantage to which it may lay claim should go far to disarm the criticisms of conservative teachers: it does not upset the class system of the school and it can be introduced piecemeal. Let us assume that it is proposed to make a modest beginning by introducing the new method for the teaching of three subjects only, history, geography and science, in the Middle Department. The first step is to prepare three rooms to serve as laboratories in these subjects. To the history room will be transported all the textbooks, library books, maps, charts, etc., which will be useful to pupils of the Middle Department in the study of history. The geography and science laboratories will be similarly equipped. The next step is to decide what period of the school time should be devoted to laboratory work. Supposing that twelve hours a week is the aggregate amount of school time ordinarily devoted to these



three subjects, then two hours a day for five days may be transferred to laboratory work, the remaining two hours being reserved for class teaching in these subjects. All the other subjects of the curriculum will continue to be taught as heretofore by the ordinary class system during the remaining periods of each day. The third and most difficult step is the organisation of the laboratory work. The form master will assign to each pupil in his class the work in each subject which he must cover within a fixed period, *e.g.*, a fortnight. The subject matter of the assignments given to every pupil in a class should be identical though, as explained hereafter, considerable latitude is permitted in the standard of difficulty of different assignments. Each assignment should be in the form of a project, *i.e.*, it should be complete in itself and not any arbitrary and artificial task such as the study of so many pages of a text book; for example "The causes of the rise of the Mahratta Power," "The Geography of China," "Pulleys" might form the subjects of assignments. The assignment which must be written or typed should, in addition to naming the subject, contain questions and instructions to guide the pupils in their work, including references to the pages of text books and the names of other books bearing on the subject of the assignment. In order to allow for the different aptitudes and interests of the children, alternative assignments covering the same project may be given. The simplest method is to give two grades of assignment in each subject in each class. Grade "B" is the minimum amount of work which should be covered even by the most backward pupil; the same project treated more fully will form the "A" assignment, and will only be undertaken by those pupils who are strong in that subject. It will rest with the boy himself, though he will naturally be largely guided in this matter by his master, to decide whether he will contract for the "A" or "B" assignment in any one subject. If, for example, he is strong in science and weak in history and geography, he may take on the "A" contract in science and the "B" contracts in the latter two subjects. If at the end of the fortnight it is clear that the "A" work was beyond him, he will be content with the three "B" assignments for the next contract. This contracting by the pupil to cover the work assigned to him is one of the essential features of the Dalton Plan. It throws the responsibility for completing the task on the pupil who has promised to fulfil his contract. In some schools an actual form of contract is signed by each pupil and handed over to the teacher.

But it would be unfair to expect the pupil to fulfil his contract if he were also not given a freehand to work at it as it seemed to him best. We now reach the central feature of the Dalton Plan. The boy having assumed his contracts now enters on the fortnight's work in which he is to complete them. At the beginning of the two hours' laboratory period he enters whichever of the three laboratories he likes; he decides, for example, to begin with geography. On entering the geography room he may find some other boys of his class there. It is open to him to join them in their work. This

system of group working is also an essential feature of the Dalton Plan. He will find in the room all materials that he will need for his work. He will also find a geography teacher sitting at a desk to whom he may take any problem which arises for solution. There is no need for him to stay in the room when his interest in the subject has flagged. He may then proceed to either the history or the science room. In short the time of each pupil during the laboratory periods is at his own disposal provided only that he works in one or other of the three laboratories and is not disturbing the work of the other pupils. Whereas under the class system he may have had to devote six hours a week to arithmetic for which he has a natural bent and the same number of hours to history and geography which he finds difficult, he may, under the Dalton Plan, complete his arithmetical assignment in three hours and transfer the three hours saved to his weaker subjects.

At the same time some daily measure of time and work is necessary if only to warn a boy when he is getting behindhand with any one of his contracts. Various devices are used for this purpose. A simple method is the following. Each assignment is divided into units of approximately equal lengths, *e.g.*, five weekly units. Outside each laboratory is hung a chart on which the names of all the boys are entered with blank columns for units opposite to the names. When a boy leaves the laboratory, he draws a line across one or more blank columns opposite to his name on the chart, thus indicating the number of units he has just completed. In addition to the laboratory charts, it will add considerably to the interest of the children if separate cards are supplied to each of them similar in form to the laboratory charts but with the names of the subjects entered in the first column. This card is filled in by the boy in the same way as the laboratory chart by drawing a line through the units opposite to the subject which he has just studied. While the plan is in its early stages, it may be of advantage to have the entries on the boys' cards certified by the teachers in charge of the laboratories. The proper fulfilment of the contracts is tested by the form master either by requiring the boys to record notes of their work in the form of answers to questions supplied in the assignment; or by tests in the form of each assignment period, or preferably by both means.

Finally, and this is a most important point, no home work is required in laboratory subjects. If a boy finds that he cannot complete his contract in any subject in the laboratory in the time at his disposal, he is at liberty to work at it at home. But the assignments should be so drawn up that it should be unnecessary for him to do so unless he wastes his time in school.

The foregoing short description of the Dalton Plan would be incomplete if answers to some of the more obvious criticisms that suggest themselves were not offered. These answers are derived from the experience of headmasters and teachers who have tried the plan.

In the first place, how does the plan affect discipline? At first it is admitted that there is a certain amount of confusion owing to boys attempting to enter laboratories which have already their full complement of students, caused also by unnecessary talking by the more light-hearted boys in corridors and laboratories, etc. But even in England it is found that this phase is soon over and it is unlikely to be so acute in India, where discipline is much more easily maintained owing to the genuine desire of most of the boys to succeed in their work.

*Secondly*, is there not a temptation for boys to neglect those subjects which are distasteful to them? The methods by which such neglect is checked, i.e., the laboratory charts and pupil cards, have been described and it is of course the duty of the form master to keep an eye on the work of his form. As a matter of fact, it is often found that a boy first tackles the subject in which he is most backward, reserving for his easier moments his favourite subjects.

*Thirdly*, the drawing up of assignments is undoubtedly a matter of some difficulty. It will be realised that this difficulty only exists in the earlier stages under the new system. In a year or two a set of standard assignments for each class in each subject is evolved, which may of course be modified from time to time in the light of experience, but which will relieve teachers of this initial responsibility. Actual sets of standard assignments have now been published for use in English schools though, except as models of the form which assignments should take, they will probably be of little use in Indian schools.

*Fourthly*, until the assignments have become standardised, until both boys and masters are accustomed to working under the new system, the Dalton Plan undoubtedly makes a serious demand on the teachers. Apart from the great care needed in drawing up suitable assignments and explaining them clearly to the boys before they undertake their contracts, the work of allotting suitable assignments to each member of his form and of checking their progress from their notes and by periodical tests requires a genuine interest on the part of the teacher not only in the subjects which he teaches but also in the capacities of individual pupils. The task of supervising laboratory work, though it will naturally be distributed amongst those teachers who are specialists in the various laboratory subjects, is in itself sufficiently arduous. Any one who has supervised preparation time in the school when boys of different ages and at different stages of progress ask for help from the supervisors will realize that this requires more of a master than the same period spent in ordinary form work.

Mr. G. A. Small, I.E.S., Inspector of Schools, Assam, makes several suggestions based on his practical experience of the working of the Plan in Assam schools:—

- (a) The boys should bring up units of work for correction, not whole assignments, otherwise the teacher is overwhelmed with masses of correction at the end of the assignment period.

- (b) No new assignment should be given to any boy in any subject until his previous assignment in all subjects is passed by the subject teachers, exceptions to this rule must receive the headmaster's sanction.

In spite of these and other difficulties Mr. Small says " I do not think any teacher who is interested in his work and has tried the Dalton Plan would willingly go back to ordinary class method. He gets to know his boys personally and finds that dealing with their individual difficulties, though tiring, is more interesting than dealing with them as a class."

## THE DALTON METHOD IN THE SHILLONG GOVERNMENT HIGH SCHOOL.

One of the commonest arguments used by the critics of the Dalton method in Indian schools is that it is impracticable. The atmosphere of an Indian school and of an Indian home, it is said, is so different from that of England and America that the method is bound to be a failure. Moreover the paucity in the Indian vernaculars of books of reference and books of general interest for young people, the fact that the reading of books other than school textbooks is, for various reasons, uncommon, and the further fact that the education of boys in the upper classes is conducted through the medium of a foreign tongue seem, at first sight, to justify this contention very much. While it is conceded that the brighter boys coming from well-to-do-homes may derive some benefit from the Dalton Method many fear that the effect of such a method on dull, slow boys and on boys who have to be compelled to study at every point, is bound to be bad. It is further argued that the method, in order to be successful, demands accommodation and apparatus on a scale impossible except in a very few favoured schools.

It is nevertheless a fact that the method can be made a very real success even where the conditions seem, from every point of view, to militate against its introduction. It would be difficult to find a school where conditions for the introduction of the Dalton Method are less favourable than the Shillong Government High School. In its provision has to be made for the education, not only of Bengalees and Assamese, but also of boys belonging to eight or ten different Hill Tribes all speaking different languages. In none of these languages is there a literature worthy of the name. The richest of them, Khasi, has not a hundred books all told, whereas most of them are limited to a few reading primers and some portions of the Bible. Most of these languages are not recognised by the Calcutta University even for translation purposes with the result that these boys, in addition to being taught through the medium of English, have to learn another tongue to serve as a vernacular for examination purposes. Again, few of the parents of these boys are in a position to give their sons any help at home. The majority of them are poor cultivators who themselves have had little or no education, and, if it is true that the greatest impetus to study is to live in the company of studious people, it will be seen that very little help can be got for the Dalton Method from the home life of the majority of the Hill boys.

For the last twelve years the question of increased accommodation has been urgent in the Shillong School. On this point Inspectors, Directors of Public Education, Ministers, and Governors are of our mind, and it is calculated that at least eleven extra classrooms are required to provide the school with the accommodation it needs. Scarcity of funds alone has delayed the provision of the required additional accommodation.

From no point of view, therefore, is the school exceptionally well fitted for the introduction of the Dalton Method. And yet, in spite of all these disadvantages, the method, as modified to suit our needs, has been an unquestionable success.

Practically everybody interested in education is discontented with things as they are. The curriculum is undoubtedly too confined to purely literary subjects. It needs broadening. It needs to include subjects which will enable the boys to take a far greater interest and pleasure in the world around them and in the course of everyday events. Its tendency is to estrange boys from village life without creating in them an appreciation of the resources and possibilities of real culture in village life, and equipping them to utilize those resources and culture.

But however much we may desire to modify and change the curriculum most of us have to accept the curriculum as laid down for us by the powers that be. But even with the present curriculum a great deal can be done by the adoption of better methods. Important as the question of subject matter undoubtedly is, and urgent as the need is to lead our pupils to fields of study which will demand more real thinking and create an attitude to problems and to life which will enable them to preserve, develop, and utilize the culture and resources of life round about them, it is nevertheless true that almost any subject matter can be made the means of enlightenment, inspiration, and mental and spiritual discipline and development, provided the method of study adopted trains the boys into the right attitudes.

It is from this point of view that the Dalton Method is of the highest service. What are we aiming at in all our educational work?

We wish, in the first place, to enrich the lives of our pupils and to open to them the doors of the untold wealth which the literatures of the world possess. We wish, not only to prepare them for life but to prepare them against life, *i.e.*, to give them means and resources of cultural and spiritual development which will enable them to rise superior to the poverty of the conditions in which so many of them must live.

We wish, too, to give them a mastery of the mechanism of learning so that they may know where to obtain the information which they need and how to adapt that information to the solution of the problems which they may have to face later on in life. This involves the need of teaching our pupils the effective use of the books and sources of information. It implies their introduction to a far wider range of books and problems than the ordinary text-book method allows.

Various efforts have been made in the Shillong school from time to time to remove the obvious defects of the old system of class-teaching. In order to ensure regular study throughout the year in the place of fitful bursts of cramming just before the terminal and the final examinations the system was once tried

of giving daily marks for work tested and done in class and of adding the percentage of marks thus gained throughout the year to the percentage of marks gained in the final examination of the purposes of proportion. Again, in order to do away with the waste of time involved in keeping back in the same class for another year a boy who had failed in one particular subject, an attempt was made, on the suggestion of the Director of Public Instruction, to promote boys by subjects, *i.e.*, a boy might be in Class VIII in English in which he was strong, and in Class VI in Mathematics, in which he was weak. But whatever merits or demerits such a system might have had it was found impracticable in a school where so many interests had to be served to arrange a time-table in such a way as to permit of this being done.

Three years ago, *i.e.*, in 1923, it was decided to introduce a very modified form of the Dalton Method into the school. The history of the experiment will be of interest if only to show that the spirit of the Method can be followed even if the letter cannot be carried out in every detail.

In education, as in religion, it is of utmost importance to distinguish between the letter and the spirit. Nothing would be easier than to reproduce all the mechanism of the Dalton Method and yet miss its essential spirit. The Method involves such a revolution in education that we must not be surprised if teachers who have been trained in quite another atmosphere and who have never seen the Dalton Method successfully worked out are sceptical and afraid of its introduction. The success of the Method depends so much upon the enthusiasm and spirit of the teacher that it is of the utmost importance that he should be wholeheartedly convinced of its value and converted to its point of view.

The Dalton Method is itself a development, the result of a series of experiments and improvements conducted over a series of years. Moreover, it is a method capable of considerable modification according to the circumstances of the school into which it is introduced. In introducing it into the Shillong High School I was more concerned, during the first year, with leading the teachers to see what was being aimed at, and with helping them to get the new point of view than with anything else.

The form which the experiment took was, therefore, to introduce a very modified form of the Dalton Method. Eight classes were selected for the experiment, *viz.*, three sections of Class VII, three sections of Class VIII, and two sections of Class IX.

1. Monthly assignments were prepared and given to the boys which aimed at:—

- (a) indicating to the pupils the amount of work they were expected to do in a month,
- (b) pointing out the essential and important things to be mastered and the difficulties that would, probably, be encountered,
- (c) demanding real preparation and thought.

2. Two periods a day were given over to free study. During the first year no attempt was made to establish Subject Laboratories. Each class remained in its own room during the periods of free study. During these periods there was no class teaching. The pupils were at liberty to take up any subject they liked while the teacher in charge was ready to help the boys with the difficulties they could not solve. The same teacher was not in charge of the same class throughout the week, but the teachers were so arranged that during the week the pupils would get the help of teachers who were experts in all the various subjects studied.

3. Nor was the grap system as yet introduced but a monthly examination was provided as substitute for the time being. Class-teaching, however, gradually underwent a definite change. More time was spent in testing the boys and in finding out what their difficulties were. It was found unnecessary to do in class all the work that used to be done. As a result the efforts could be confined to real difficulties and the teacher found it was possible to cover more ground.

It may be argued that there was very little of the Dalton Method about this, but the results of the experiment were, nevertheless, very valuable.

In the first place, it gave the teachers valuable experience in the preparation of assignments. These assignments were presented to me every month for inspection and criticism. They were further modified and improved in the light of actual experience from month to month. The effort to look at the work to be done from the point of view of the pupil rather than that of the teacher was in itself a valuable discipline of thought, while the teacher was compelled by failure to put more care and thought into the planning of his work. The assignments were often very imperfect and it would have saved the headmaster much time and trouble if he had undertaken the preparation of the assignments himself. But the temptation to do this was resisted. So much in the Dalton Method depends upon the ability of the teacher to put himself in the place of his pupils and to plan out his assignments well that I should have been perfectly satisfied if we had got nothing more out of the first year's experiment than this experience in the preparation of assignments.

But a great deal more was gained. It gave a new point of view to the pupil as well as to the teacher. It shifted the responsibility for progress to some extent at least from the shoulders of the teacher to that of the pupil. The pupil saw clearly before him the course of study that he had to follow; he was given a definite idea of the amount of work he was expected to do within a stated time: he found that he had to prepare in anticipation of the lesson to be given by his teacher: and, finally, he came to look upon his teacher from a new angle, i.e., as a helper in trouble instead of as a driver.

No one could help noticing the difference in the atmosphere during the periods of free study as compared with that of the ordinary classes. Everybody was hard at work and there were three



reasons for this. First, each student was busy with work of his own choice. Secondly, he was out to get all the help he could from his teacher. Third, he found that many of his problems could be easily solved when tackled in co-operation with two or three of his fellow-students. The teachers, too, soon found that at no time in the day were they so hard at work as during the Dalton periods.

At the end of the year when we met as a body of teachers to discuss the year's work we found that more work had actually been covered than in previous and that the experiment had been too valuable to return to the old methods. But it was also felt that, if we were to go on with the method it would be necessary to introduce Subject Laboratories as soon as possible.

The Subject Laboratories were introduced in the following year. If our accommodation had permitted and if our teachers had had the necessary qualifications we would have arranged the following Laboratories:—two for English, one for Bengalee and Assamese, one for Khasi, one for each of the following, Algebra, Geometry, Arithmetic, History, Geography, and Sanskrit. We were compelled, however, to be content with eight only and as we had not enough teachers with the necessary qualifications to have three Mathematical Laboratories arranged according to subjects we had to be satisfied with the following:—one Laboratory for English, Bengalee, and Assamese: another for English and Khasi: three Mathematical Laboratories arranged by classes, *i.e.*, one for Class VII, one for Class VIII, and one for Class IX: and one each for History, Geography, and Sanskrit.

For these Laboratories we had neither special apparatus nor books. What books and apparatus we had, *viz.*, Geographical and Historical maps, charts, and pictures, Geographical apparatus, reference books and dictionaries we put out in the various Laboratories. But they were far from being equipped as an ideal Laboratory should be equipped.

During the periods set apart for the Dalton Method, *i.e.*, during the last two periods of the day the boys were given freedom to go to any of the Laboratories they liked. This freedom, however, was a freedom within limits. In the first place before starting work each class gathered in its own class-room for roll-call, and at the close of the day before dismissal it returned again for a final roll-call. Moreover it was made clear to the boys that they would have to spend at least three quarters of an hour in the first Laboratory chosen before they would be allowed to leave for another Laboratory. As the Laboratories are meant for study and not for testing, which takes place mainly in the periods set apart for class-teaching, it was held that at least three quarters of an hour should be devoted to a subject if any real work was to be done. At the close of the three quarters of an hour a bell was rung and the boys were at liberty to go to another Laboratory at any time they liked. It has been found from experience that the majority of the boys are ready for a change after three quarters of an hour. Still, many go on for another

fifteen or twenty minutes and make a change then, and some are found, especially in Mathematics, devoting the whole of the two periods to the one subject.

One of the great fears in the minds of parents and others was lest the boys should abuse the freedom given and play truant during the periods devoted to free study. Efficient checks have been provided against this possibility. In every class-room, after the roll-call, the number present in each class is recorded on the Blackboard. Later on when the boys from the different classes have settled down to work in the various Laboratories the number from each class is further recorded and changed as boys come and go. For instance, the Blackboard in Geography Laboratory held in Class VII-B room, may have the following written on it:—

Class VII-B.	No. present	25
9A . . . . .		12
9B . . . . .		3
8A . . . . .		5
8B . . . . .		2
8C . . . . .		0
7A . . . . .		6
7B . . . . .		0
7C . . . . .		8
	TOTAL	36

The Headmaster, or the Assistant Headmaster, goes round the various Laboratories for supervision, etc., two or three times a day, and, without any trouble is able to check the number of boys present with the number on the roll. The plan has been found a most simple and efficient check upon any possible truancy.

The introduction of the Subject Laboratories was an immediate success. Every visitor to the school was impressed by the unmistakable atmosphere of study in the Laboratories. The teachers were pleased both with the quantity and the quality of the work done, and the gratifying thing was that the boys spent most of their time in studying the subjects in which they were weakest.

During the third year still another step forward was taken and class graphs, according to subjects, were introduced and the work of the boys was recorded as it was finished and tested. These graphs proved of the greatest utility. They enabled the teacher to see clearly how his pupils were getting on and which of his pupils specially needed his help and guidance. They revealed to the pupils themselves where they stood with reference to their work and to other pupils. They proved an incentive to more rapid and efficient work. They called for better and more thorough testing. As a result of the introduction of these graphs every boy in the school was found to have completed his assignments for the year by the

month of November. This meant that the whole of the work set out for the year had been covered and revised. It meant that every boy had covered the whole of the course and not simply such parts of it as he himself had decided were of importance from an examination point of view.

A study of the promotion results of the school for the last three years bears eloquent testimony to the value of the Dalton Method, the more so when the difficulties we have to contend with and the type of pupil we have to cater for are kept in mind. In 1923 the percentage of pupils promoted to the next class was 70 per cent. In 1924 the percentage had risen to 80 per cent., while in 1925, 87 per cent. of the pupils were promoted. In addition to this far more work was covered and undoubtedly better done.

The fourth year has seen the introduction of the Individual Graph and the extension of the Dalton Method to the Matriculation Class (Class X). Hitherto it had been felt unwise to subject so important class to an educational experiment of this sort and the class was allowed to go on along the old lines. But the results in the other classes showed such a marked improvement as the result of the introduction of the new method that at the end of 1925 it was unanimously decided by the teachers that the Dalton Method should be extended to Class X as well.

In the same staff meeting it was also decided to introduce the Individual Graph from the beginning of 1926. The Glass Graph recorded the work of a class in one subject only and while it enabled the teacher to see how the whole class was getting on in any one particular subject, and which of the boys were lagging behind and in need of special help, it did not show how each boy stood with regard to his work as a whole. The Individual Graph records the month's work of each boy in every subject, and since a boy is not allowed to start on the second month's work until the *whole* of the first month's has been done the Individual Graph is already proving a boon both to the boy and the teacher who is thus enabled to direct the boy more carefully as to the more effective use of his time.

As a result of the extension of the method to Class X an extra room has been made available for the purposes of Subject Laboratories so that now we have the following Subject Laboratories:—

English	2 rooms.
English and Khasi	1 room.
Mathematics	3 rooms (including the School Hall equal in size to 2½ ordinary rooms).
Sanskrit and Bengalee	1 room.
Arabic and Assamese	1 room.
History	1 room.
Geography	1 room.

The following actual figures are a fair indication of the way in which boys generally exercise their choice in the matter of Subject Laboratories:—

	May 5th 1926.	May 7th 1926.
English . . . . .	73	86
Mathematics . . . . .	133	103
Geography . . . . .	35	35
History . . . . .	26	19
Sanskrit and Bengalee . . . . .	30	28
Arabic and Assamese . . . . .	5	8

These figures vary, of course, from day to day, but the above figures are a fair average of what is found most days.

### *Assignments.*

Assignments are prepared as follows:—In the month of November the course of study for the following school year, which begins early in February in this school, is carefully worked out.

The year's work is divided into nine assignments, which includes one final revision assignment for November and part of December. Each assignment gives the work expected from the boys in one month, and is further divided into four weekly periods, consisting of three units per week. Three years' experience in the preparation of assignments has given the teachers a fairly accurate idea of how the work can be planned out to ensure even working throughout the year. As the units are completed the boys go up to the teachers to be tested and if the work is found satisfactory the class and the Individual Graphs are filled in accordingly.

### *Specimens of Assignments.*

#### ENGLISH.

Class VII. May 1926—4th week. Text Book: The English Dalton Course by John Eades.

#### 4th Week.

##### 1st Unit.

1. Read the story carefully, and be able to tell the whole of it in your own words.
2. Be able to explain the following:—handsome, intelligent, tenaciously, peculiar, stubbornly, the would-be murderer, conspired, scheme.
3. Suppose the dog could have spoken; write down what you think he would have said, when the groom came to chain him up.

4. Put the coachman's confession in his own words. Begin in this way:—

The coachman confessed afterwards, and said, "I knew that my master had a large sum of money . . .  
 . . . . ."

$\frac{1}{2}$  Unit.

1. Learn how to spell all the words in the last paragraph, beginning, "The mastiff."
2. Write out the following in your best hand writing:—  
 This story of the mastiff shows the ability of some dogs to understand human speech.

1. Unit.

Read carefully through the piece, and then be ready to answer the following:—

- (a) What is the length of a full grown whale? Measure the distance of strides.
  - (b) In what ways is a whale different from a fish?
  - (c) How does a whale feed?
  - (d) What helps him to float?
  - (e) What does he do, when he wishes to sink?
  - (f) Why does he rise to the surface?
  - (g) Describe the uses of the whale's blow-hole.
  - (h) Why is the blow-hole closed under water?
2. Explain these words:—Scales (what other meaning has this word?), jolly-boat, distinctly, stunned.
  3. Write down the names of as many creatures living in the sea, as occur to you.
  4. Learn how to spell all the words in the last paragraph, beginning, "As soon as he dives."

$\frac{1}{2}$  Unit.

Make references and enquiries, with a view to finding out why a cork floats on water, and a pen-knife sinks.

ADDITIONAL ENGLISH.

Class X. May 1926—1st Week. Text Book: Smiles' Self Help.  
 India in Song.

1st Week:—Rhetoric.

1st Unit.

1. Explain and illustrate by examples:—  
 Pleonasm; periphrasis; tautology; circumlocution.
2. Name the different kinds of diffuseness in the following:—  
 (a) It was the privilege and birthright of every citizen and poet to rail aloud and in public.

- (b) They returned back again to the same city from whence they came forth.
- (c) Cromwell left behind him a name not to be extinguished but with the whole world.

3. Express the sentences in q. 2 omitting all superfluous words and expressions.

2nd Unit:—Smiles' Self-Help—Chapter I, 5 pages.

*N.B.*—Read the whole chapter several times before attempting to answer the following questions:—

1. "Heaven helps those who help themselves." Explain the maxim and illustrate it by an example from your own life.
2. Why is the worth of a state dependent on the worth of the individuals composing it? What is your duty in this respect?
3. Give the substance of paragraph 4th (National progress, etc.).

3rd Unit:—Composition and General knowledge:—

1. What do you know of the recent Calcutta riots? What were the causes of this outbreak?

Can you give any suggestions to prevent these riots in future?

2. Distinguish between:—

Disappointed of and disappointed in, to go to school and to go to the school; he did not do half his work and he did not half do his work; a doctor's gown and cap and a doctor's gown and a cap.

### ENGLISH.

Class X. May 1926—1st and 2nd Weeks. Text Book: Calcutta University Selections.

1st Week.

1st Unit:—Physical Courage—paragraphs 21 to 24.

1. Explain the following phrases and use them in sentences of your own:—

Unnatural cruelty; loyalty to duty and forgetfulness of self; voluntary submission; call of duty and reflected glory.

2. Give the causes that stimulate physical courage.
3. "Our share in these deeds must not end in the reading." What does the writer expect you to do when he makes this remark?
4. What is, according to the author, most shameful and what is most desirable?

2nd Unit:—Moral Courage—Mottoes and paragraphs 1-2.

You have *read* 'Physical Courage.' Now you are going to *read* 'Moral Courage' of the same author. Before beginning to *read* the piece think out what sort of courage should be called 'Moral Courage.' Then go through the whole piece several times and see whether you have been able to anticipate the writer even in some respects.

1. Distinguish between Physical Courage and Moral Courage.
2. Give the meanings of the following words and phrases and frame sentences with them: Sinews of goodness; high-water mark; braces; inspires with fortitude.

Q. What is meant by 'Sinews of War'?

3. Explain the mottoes fully:

3rd Unit:—Poetry—Elegy—Stanzas 13 to 15.

1. Turn into prose order all these stanzas.
2. Parse 'unroll (13) Waste (14)' and 'that' (st. 15).
3. Explain—spoils of time; dauntless breast; inglorious Milton.
4. What is the leading idea of these stanzas?
5. What do you know of Hampden, Milton and Cromwell?

2nd Week.

1st Unit:—Moral Courage—paragraphs 3, 4, 5 and 6.

1. How does the author define 'Moral Courage'?
2. Show how moral courage is superior to physical courage?
3. Whom can you call 'almost a perfect man'?
4. Give the antonyms of the following:—  
approve; noble; accept; consent; rough.

2nd Unit:—Moral courage—paragraphs 7, 8 and 9.

1. How do people generally, and young people particularly, look upon moral courage, and why?
2. In what does the nobility of Ram and of Arjun consist?
3. What do you know of Galileo? What does his life teach you?
4. Give the meanings of the following and frame sentences with them:—  
overvalue; unflinchingly; depreciate; suppleness of limb; objects of ridicule; accord with; heretical.
5. Can you give an example of Moral courage from your own life?

3rd Unit:—Poetry Elegy—stanzas 16 to 19.

1. Turn into prose order stanzas 16, 17 and 18.
2. Give the leading idea of these 3 stanzas.
3. Cite an instance from Indian History to illustrate the following:—"Wade through slaughter to a throne."

4. Explain the following:—

- (a) Applause of listening senates.
- (b) Struggling pangs of conscious truth.
- (c) to Quench the blushes of ingenuous shame.
- (d) Muse's flame.
- (e) The noiseless tenor of their way.

5. Distinguish between command and commend; ingenuous and ingenious.

## GEOGRAPHY.

Class VII. May 1926.

1st Week.

1. (a) How does a mountain help rainfall and a desert prevent it?

(b) What makes the Western portion of the Deccan have lower temperature than the eastern in summer?

2. The Deccan lies in the Torrid Zone but its temperature is not very high; What is the cause of that?

3. Name the Provinces which are outside the monsoon region.

2nd Week.

1. Classify the people of India and their languages in a form shown below and learn them:—

Family or stock: Races of people: Provinces: Languages spoken: inhabited.

2. What is the total population of India? Draw a population map of India. Name the places that have the densest population and that have the least and account for such a difference.

(page 126.)

3. In form given below write notes on the religions in India and learn them:—(page 127).

Religion: People who practise it:

3rd Week.

1. What is the main occupation of the people of India? What does that depend upon? How is cultivation carried on in places where rainfall is deficient?

2. Write notes on the agricultural products in a form shown below and learn them:—(pages 128 to 132).

Products: Regions where they grow: Condition of the soil or Climate.

3. Draw maps showing the chief products. (Two maps to be drawn and some of the products to be shown on each map) page 131.



## 4th Week.

1. Write notes in a form shown below on the mineral products and learn them:—

Minerals: Where found: Chief Centres:—(page 132).

2. Draw a map to show the areas where the chief minerals are found in abundance (page 131).

3. In a form below write notes on the important manufactures and learn them:—

Agricultural products: Where manufactured:

## GEOGRAPHY.

## Class VIII. May 1926.

## 1st Week.

1. What is the condition of the Climate of the British Isles? Explain clearly the causes that affect their climate.

2. What portions of the British Isles have the most agricultural products? Name the important timbers and crops.

3. Name the chief fishing stations, and the chief centres of different minerals.

## 2nd Week.

1-2. Name and find the centres of the different manufactures of Great Britain and Ireland.

3. What are the chief exports and imports of Great Britain? What does the nature of these exports and imports indicate?

## 3rd Week.

1. Name the chief sea ports of Great Britain and find their positions.

2. (a) What are the chief means of communication?

(b) Explain briefly the form of Government of the United Kingdom.

3. (a) Name the races from which the people of Britain descend.

(b) Compare the population of the British Isles with that of India.

(c)  $\frac{3}{4}$  of the people of Britain and only  $\frac{1}{10}$  of that of India live in towns; how do you account for it?

## 4th Week.

1. Name some of the largest towns and find their positions.

2-3. Name and find the positions of the chief possessions of Britain in the world.

*Practical Exercises.***1st Week.**

1-2. Draw an annual rainfall map of the British Isles put in arrows to show the directions of winds.

3. Name on the back of the map the regions of heavy and low rainfall. State reasons for the difference.

**2nd Week.**

1-2. Draw a vegetation map of the British Isles and show therein the chief coal fields and some of the most important manufacturing towns.

3. Write notes on the back of the map explaining the vegetation regions, coal fields, and connection of the manufacturing towns with the coal fields.

**3rd Week.**

1-3. Draw a simple political map of the British Isles and show therein the positions of the important rivers and the chief towns as far as possible. All the writing in the map should be in print type.

**4th Week.**

1-2. Copy the map on p. 269.

3. Examination.

**Text Book History of India for Junior classes by E. Marsden.****HISTORY.**

Class VIII. March 1926. 1st and 2nd weeks:

*1st Week:* Indian History, Chapters 42, 43 and 44.

*1st Unit:*

Q. 1. Give an account of the third Carnatic War or describe the struggles between the English and the French for supremacy in Southern India from 1744—1763. What was the result of that long struggle?

*2nd Unit:*

Q. 2. What do you know of Mirjafar? Who became the Nawab of Bengal after Mirjafar?

Q. 3. What led to the struggle between Mirkasim and the English? Give an account of it.

*3rd Unit:*

Q. 4. Draw a map of India to illustrate the three Carnatic wars.

*2nd Week:* Reading lesson—Chapter 45.

*1st Unit:*

- Q. 1. When and between whom was the treaty of Allahabad concluded? What were the terms of the treaty?
- Q. 2. Give an account of the career of Robert Clive in India?

*2nd Unit:*

- Q. 3. Write what you know of Clive's reforms.
- Q. 4. What do you mean by the Dewani? When was the Dewani of Bengal, Behar and Orissa granted to the East India Company?

*3rd Unit:*

- Q. 5. Draw a map of British India after Clive.

April 1926. 3rd Week.

*3rd Week:* Reading lessons 51—53.

*1st Unit:*

- Q. 1. How long was Warren Hastings Governor General of India? Why was the Regulating Act passed? What were the changes introduced into the affairs of the E. I. Co. by the Regulating Act? What difficulties had Hastings had with his new council? Who was Nandakumar? Why was he hanged? What two wars did Hastings make when he was Governor General.

*2nd Unit:*

- Q. 2. Give a short account of the First Maharatha War. What did the English gain by this war? Write a note on the Treaty of Salbye.

*3rd Unit:*

- Q. 3. What led to the 2nd Mysore War? How and when was it concluded?

## GEOMETRY.

Class VII. April 1926. Text Book: A School Geometry by Hall & Stevens.

*1st Week:*

1. (a) Define Perimeter, Vertex, hypotenuse, median, and  
(b) explain the following terms: Equilateral, equiangular, regular.
2. Name the different triangles with diagrams of each of them.

3. Into how many parts can a triangle be divided? When are two triangles said to be equal in all respects? (Look up p. 17.)

*2nd Week:*

1. Learn Theorem 4 and write it out using different letters. (1 unit.)
2. Do Exercises on p. 19. (2 units.)

*3rd Week:*

1. Learn Theorems 5 & 6, and hence prove that if a triangle is equilateral it is also equiangular and the *vice versa*. (1 unit.)
2. Of how many clauses does the enunciation of a theorem consist, and what are they? What do you understand by an 'axis of symmetry' and an 'indirect method of proof'? (1 unit.)
3. Work out Exercises on p. 21. (1 unit.)

*4th Week:*

1. Enunciate and prove theorem 7. (1 unit.)
2. Note that the two triangles are equiangular to one another when the three sides of the one are severally equal to the three sides of the other. Show also by a diagram that the converse is not necessarily true. (See p. 25.) (2 units.)

## GEOMETRY.

Class VIII. March 1926—3rd and 4th Weeks. Text Book: A School Geometry by Hall & Stevens.

*3rd Week:* Theorem 17 and 18.

1. (1) From the enunciation of each of these two theorems, find out the hypothesis and conclusion.

(2) State the necessary conditions on which two triangles are to be proved identically equal. (1 unit.)

2. (1) Why is not Theorem 18 classified along with Theorems, 4, 7 and 17?

(2) State the properties of a triangle relating to:—

(a) The sum of its interior angles.

(b) The sum of its exterior angles. (1 unit.)

3. Enunciate two theorems in which from data relating to the sides, a conclusion is drawn relating to the angles. (1 unit.)

*4th Week:*

1. (1) How can you show that in the classification of triangles with regard to angles Theorem 16 is assumed?

(2) Enunciate two theorems in which from data relating to angles, a conclusion is drawn relating to sides. (1 unit.)

2. (1) What is a parallelogram? Show the "Squares", "rectangles" and "rhombuses" are also parallelograms.

(2) Learn the proof of the theorem 20. (1 unit.)

3. What conclusion do you arrive at:—

(a) if two sides together be equal to the third.

(b) if the sum of any two is less than the third. (1 unit.)

## ALGEBRA.

Class VII. April 1926. Text Book: Matriculation Algebra  
by K. P. Basu.

*Exercises 4—8.**1st Week:*

1. Learn the names of the different pairs of brackets. (Look up p. 13.)

2. Illustrate by examples a binomial and a multinomial expression, and show the difference between  $\sqrt{ab}$  and  $\sqrt{a}b$ .

3. Go through the examples given on pages 13 and 14, and do Exercise (4).

*2nd Week:*

1. Explain a like and an unlike term, and also a homogenous expression.

2. What do you understand by a positive and a negative quantity? Illustrate your answer with examples.

3. Work out Exercise (5).

*3rd Week:*

1. Note that the sum is positive or negative as the quantities added together are either positive or negative. (1 unit.)

2. Read carefully the examples given and work out Exercise (6). (2 units).

*4th Week:*

1. Learn the rule for adding positive and negative quantities. (Look up p. 26.)

2. Work out Exercise (7).

3. Do Exercise (8).

### ALGEBRA.

Class VIII. March 1926—1st and 2nd Weeks: Text Book: Matriculation Algebra by K. P. Basu.

*1st Week:* Formulæ and their applications:—

1. (1) Explain the statement, "A formula is the most general expression for any theorem respecting numerical quantities".

(2) What is the general rule of finding the square of an Algebraical expression?

(3) How much will you add to or subtract from each of the following sums in order to make it a perfect square:—

(a)  $a^2 - 12ab$

(b)  $4x^2 + 9y^2$

(c)  $16m^2 + 8m$ .

(d)  $1 - 2mn$ .

(e)  $25 + 100x$

(1 unit).

2. Work out all the sums of Exercises 22 and 23. (2 units.)

*2nd Week:*

1. (1) The Square of the sum of difference of two numbers is equivalent to the square of the 1st number with twice the product of those two numbers *plus* the square of the second number.

(2) The Symbolical Expression of the above truth is:—

$$(a \pm b)^2 = a^2 \pm 2ab + b^2.$$

(3) The Square of any quantity either positive or negative is always positive.

(4) Prove the following:—

(a)  $a^2 + b^2 = (a + b)^2 - 2ab$ ; or  $(a - b)^2 + 2ab$ .

(b)  $a^2 - b^2 = (a + b)(a - b)$ .

2. (a) When an expression is the product of two or more expressions, each of the latter is called a factor of the former.

Explain this by Examples.

(b) What is an Elementary factor? (1 unit.)

3. Work out all the sums of Exercise 24. (1 unit.)

### ALGEBRA.

Class X. May 1926. Text Book: Matriculation Algebra by K. P. Basu.

*1st Week:* Ratio and Proportion.

I. Read article 1.

(1) From the definition of "the ratio of two quantities" mark that (a) the two quantities must be of the same kind, (b)

the ratio is always an abstract number, fractional or integral

(2) Mark the following:—

- (a) Terms of a ratio.
- (b) Ratio of less inequality.
- (c) Ratio of greater inequality.
- (d) Ratio of equality.
- (e) Inverse ratio.

II. Prove that a ratio of less inequality is increased and a ratio of greater inequality is diminished by adding the same number to both its terms. Give a concrete example.

III. What do you understand by the following:—

- (1) Compound Ratio.
- (2) Duplicate Ratio.
- (3) Triplicate Ratio.
- (4) Subduplicate Ratio.
- (5) Subtriplicate Ratio.

*2nd Week:*

(1) Exercise 93. Go through the examples worked out in the book.

(2) Nos. 1, 2, 4, 6—10.

(3) Nos. 11—20.

*3rd Week:*

I. (a) When are four quantities said to be proportionals?

(b) Note the following:—

- (1) Extremes and means of a proportion.
- (2) Fourth proportional, third proportional, mean proportional, continued proportion.

II. (a) Prove that the product of the extremes is equal to the product of the means. This is 'the greatest truth' of proportion, for, by the application of this, we can find the fourth term of a proportion when the other three are given.

(b) Exercise 94. Nos. 1—10.

III. (a) If  $a:b::b:c$ . prove that  $a:c::a^2:b^2$ .

(b) Prove the operations Invertendo, Alternando, Componendo, Dividendo, Componendo and Dividendo.

*4th Week:* Exercise 95.

(1) Nos. 1—5.

(2) Nos. 8, 9, 10.

(3) Nos. 12, 13, 15.

The story of the introduction of the Dalton Method in the Shillong Government High School is the story of a development towards the Dalton ideal as experience has led us on. No attempt has been made to force the pace or to force the teachers to adopt methods of which they disapproved. The enthusiasm of the teachers and their appreciation of the spirit of the Method are essentials without which very little is possible. Gradually we have moved forward as the need for improvement and better methods suggested themselves and though we still have a considerable way to go before the Dalton Method, in all its purity, is completely followed—if such a day will ever come—we are satisfied that we have found a method the educational value of which is of the highest. None of the teachers now desires a return to the old method of class-teaching. Their endeavour, rather, is to turn even the periods devoted to class-teaching into something more of the nature of conferences of teacher and pupil, and to be guides and helpers of their pupils in those very things which they find difficult.

To sum up, among the main benefits we have derived from the Dalton Method the following are worthy of consideration :—

1. It demands from the teachers careful and thorough preparation in advance, otherwise it will be impossible to produce such assignments as are required.
2. It does away with a great deal of the evils arising in Indian schools from breaks in the school course due to holidays and leave. The work set out for the month is expected to be done whatever interruptions may come.
3. It has helped to solve the problem of discipline. When boys gather by choice in a Subject Laboratory, to study a subject they feel they need help in and in which there is an expert capable of helping them just when and where they need help, there is produced an atmosphere of study and unwillingness to suffer interruption.
4. The boys are given a new motive for study.
5. The boys are gradually taught the use of liberty.
6. Boys strong in some subject and weak in others are able to devote more time to their weak subjects.
7. The relationship between pupils and teachers is changed.
8. Far more work and better work is being done.



## REPORT ON THE WORKING OF THE DALTON PLAN IN THE ARMENITOLA HIGH SCHOOL, DACCA.

The Dalton Plan was introduced into the four top classes of this school at the beginning of the session of 1925. The subjects brought under the plan were English, Bengali, Mathematics, History, Geography and Optionals. The optional subjects are Sanskrit, Arabic, Hygiene and Additional Mathematics. A candidate for the High School Examination can choose one from among these to complete his number of subjects.

The morning was devoted to English, Mathematics and Bengali; the afternoon to History, Geography and Optional. The last hour of the day was reserved for special lessons if necessary as well as for Drawing and Drill (see time-table).

The contracts were made out for a month and contained 160 units of work. The unit of work adopted was as much as a boy of average ability could accomplish in a class period, that is about 45 minutes. The unit for mathematics, however, was different. It was as much as a boy of average capacity could perform in an hour. The number of units in the various subjects were:—

English	.	.	.	.	.	.	.	60
Bengali	.	.	.	.	.	.	.	20
Mathematics	.	.	.	.	.	.	.	20
History	.	.	.	.	.	.	.	20
Geography	.	.	.	.	.	.	.	20
Optional	.	.	.	.	.	.	.	20
								160

English comprised Prose, Poetry, Essay Writing, Translation and Re-translation and Grammar. Mathematics comprised Arithmetic, Algebra and Geometry.

The distribution of the units was based on the difficulty of the subject, its importance in the Examination, and the amount of time devoted to it in class before the Dalton Plan was introduced.

There was no special Home Work or preparation. The contracts were so made as to include about 2 hours' work out of class daily.

The work of the students was checked and recorded by means of graphs. When a student had finished a unit or units of work in any subject he took it to the instructor who tested him on the work submitted, and if satisfied initialled on the contract the units finished. The number of units done in a day was entered on a subject-graph kept by the instructor. A student's general progress was recorded by another graph (class-graph) which showed the progress of each pupil in all subjects combined. This graph was kept by the

Head Master who saw at a glance the general progress of each pupil (Specimens of contract, subject-graph and class-graph attached).

### *Application.*

Every teacher knows how difficult it is to get pupils to work steadily and regularly. A great number of pupils believe that it is waste of labour to study in the early part of the session. They imagine that everything they learn will be forgotten and must be done again immediately before the examination. There is also the idea that the year is long and a little extra labour towards the end will make them all right. Hence most of them go through the course in a perfunctory and unsatisfactory manner. They never try to retain what they learn, trusting to a few weeks intensive study when the examination comes in sight. They study solely for the examination, and forget most of what they have read directly that ordeal is over.

A great deal of this slackness is due also to sheer laziness. Many parents, too, take little interest in the progress of their children. Some are even quite content to have their sons at school, caring little, whether they work or not. To them it is sufficient honour to have their sons study in a High School.

This disinclination to steady and regular work was considerably less this year than in previous sessions. Though many students could be got to work only against arrears, the majority worked regularly all the year round and at the end of the year only three pupils out of about 120 failed to complete the course, and these in one subject only.

A great incentive to regular work was the graphs. In class a boy can neglect his work without attracting much notice, and it is impossible to convince him of unsatisfactory application. In the Dalton Plan his neglect is glaring.

A shirker can of course still shirk, but he is alone and he becomes conspicuous. If he falls too far behind he becomes an object of quiet amusement to the other students. This he cannot endure for long. He ends in either working or leaving school.

It is only just, however, to state that many boys are heavily handicapped in the prosecution of their studies, especially in this school which is situated in a poor locality. A great number have illiterate parents and poor homes. Such pupils cannot compete with the children of professors, doctors, munsiffs, etc., who live in a cultured environment. This fact accounts for the amazing difference in intelligence and ability that is found among the students of the same class in High Schools in Bengal. There were several students in school who I knew worked as much as twelve hours a day throughout the year and yet, owing to this handicap were unable to progress satisfactorily.

Another sign of the improvement in application was the fact that when a half-holiday was given, the students of the Dalton Classes were not keen to avail themselves of it. Many remained on till the

usual closing hour. In the evenings also there was no hurry to leave and many worked on long after the closing hour.

There is, therefore, no doubt but the Dalton Plan encourages the development of steadiness and persevering labour.

### *Home-Work.*

There is no part of a teacher's duty so unpleasant as that relating to home-work. A teacher in any of the top classes has generally between 60 and 100 exercises to examine daily which may occupy three or four hours of his time out of class. Many of these *khatas* are so carelessly and slovenly done that it is almost impossible to correct them, and nearly all need the presence of the pupils at the time of correction, if any benefit is to be obtained. When the exercises are returned the pupils never look over their corrections unless compelled to do so. There is, therefore, practically, no return for all this labour.

Firmness on the part of a teacher in this matter leads to unpleasantness. The teacher becomes unpopular, little conspiracies are formed to give him as much annoyance as possible, and sometimes anonymous letters are written to the Head Master. Quite apart from this, firmness is of little avail, for shirkers can always evade the consequences of neglect of home-work by remaining absent a day or two, or longer if necessary.

Something has to be said perhaps from the pupils' point of view. A boy who fails to do his home-work through no fault of his own receives no consideration. It is always assumed that he is shirking and is liable to a scolding or punishment. It is almost necessary to accept no excuse for the omission, or omission would become very general. There is also the likelihood of pupils' getting too much home-work. Each teacher who visits a class gives what he thinks is a reasonable task. The total may be beyond the pupils' capacity. The result of this is total neglect, or the whole task carelessly and slovenly done, or the task of an exacting teacher performed and the rest neglected.

No definite work was set to be done at home in the Dalton Plan, it was included in the contracts; several times during the year we called in the various classes to ascertain the manner in which they worked out of class. The replies to our inquiries were frank and truthful, and more or less what we had expected. We discovered that when pupils felt inclined or when circumstances were favourable good work was done. Sometimes the pupils worked up till quite a late hour at night. At others they retired early or omitted study altogether. Headache, fatigue after a big game, illness of a member of the family, attendance at a wedding, necessity of escorting a lady of the family on a visit—these were given as reasons for the curtailment or omission of work at home. We felt convinced from these discussions that the pupils worked regularly and honestly and the quality of the work was good because done willingly. This I think is one of the advantages of the Dalton Plan. If for any rea-

son a pupil is prevented one day from putting in the average amount of work, he can always make up the shortage on another, or on a holiday. All the unpleasantness and difficulties connected with home-work disappear and both teachers and pupils are the happier for it. Cases have come to our notice where students worked all day on Sunday to make up for a day's absence.

### *Teachers' Work.*

The plan has increased the work of the instructors during school hours. But they have got rid of the useless drudgery of examining exercises out of class. These are not examined in the presence of the pupils. Of the eight teachers connected with the plan, 6 are engaged from 10-45 to 4-15, with half an hour's break at the recess. The others remain in their laboratories for about 2½ hours. The work of a teacher out of class now consists in the preparation of contracts and the maintenance of the various graphs. The contracts are very important and great thought and labour are essential to their proper getting out. The teachers working the plan here prefer it, notwithstanding the extra work it entails for the simple reason that all the unpleasantness and worries accompanying the teaching of a class no longer exist.

### *Conduct.*

Usually faults of a grave nature are rarely committed in school. Indirect disobedience, shirking, talking and inattention in class, lies of excuse, abusive language, and fits of temper—these are the offences most frequently committed. Though they are not serious they may often develop into serious incidents and have often done so with inexperienced teachers. Such faults practically disappeared from the Dalton classes, the fact being that there was no necessity or temptation to commit them. The teachers and students worked in a friendly spirit and there was no unpleasantness of any kind.

### *Absentees' Work.*

In a school of 12 teachers it may be assumed that for 100 days in the year work is carried on with one member of the staff short. This is more serious than it appears and causes much disturbance and derangement. If an absentee's work was confined to one class only, the matter would be simple. But teachers as a rule visit more than one class. The class cannot be left to itself in the absence of the teacher; neither can it be dismissed. A member of the staff has to take charge of it. This puts extra work on one who has already enough to do, while the class gains little or nothing.

This difficulty has completely vanished. When a teacher is absent the students are notified and advised not to attend his laboratory unless they have work that does not require his help. Those who cannot work without him should concentrate on other subjects for that day. Work, therefore, goes on almost as usual even in the absentee's laboratory.

*Progress.*

The average percentage of marks obtained by the classes in each subject for the last five years was worked out, and compared with the percentages obtained at the Annual Examination at the end of 1925. The results were as follows:—

Average for 5 years.				Average 1925.	
CLASS X.					
English	.	.	.	39.9	41.0
Mathematics	.	.	.	47.8	35.1
Bengali	.	.	.	47.9	54.0
History	.	.	.	38.0	37.9
Geography	.	.	.	43.8	42.0
Optional	.	.	.	46.0	49.0
CLASS IX.					
English	.	.	.	38.6	42.4
Mathematics	.	.	.	38.3	49.2
Bengali	.	.	.	45.5	53.0
History	.	.	.	41.8	46.3
Geography	.	.	.	40.5	49.0
Optional	.	.	.	47.0	53.2
CLASS VIII.					
English	.	.	.	43.5	49.1
Bengali	.	.	.	43.7	45.1
Mathematics	.	.	.	40.7	36.6
History	.	.	.	42.6	47.7
Geography	.	.	.	43.6	45.5
Classics	.	.	.	39.9	38.5
CLASS VII.					
English	.	.	.	44.7	47.5
Bengali	.	.	.	40.8	52.7
Mathematic	.	.	.	45.6	44.8
History	.	.	.	39.3	38.4
Geography	.	.	.	45.4	46.2
Classics	.	.	.	48.8	38.5

*Note.*

1. *Class X.*—Weak, especially in Mathematics. Were unable to complete mathematics contracts; contracts had to be made easier.

2. *Class IX.*—Above the average. Worked the Dalton Plan as single class in 1924.
3. *Do. VIII.*—Weak all round.
4. *Do. VII.*—A class of average ability.

*'Arranged according to subject, the percentages were—*

*English.*

Class	X	.	.	.	.	39.9	41.0
"	IX	.	.	.	.	38.6	42.4
"	VIII	.	.	.	.	43.5	49.1
"	VII	.	.	.	.	44.7	47.5

*Bengali.*

"	X	.	.	.	.	47.9	54.0
"	IX	.	.	.	.	45.5	53.0
"	VIII	.	.	.	.	43.7	45.1
"	VII	.	.	.	.	40.8	52.7

*Mathematics.*

"	X	.	.	.	.	47.8	35.1
"	IX	.	.	.	.	38.3	49.2
"	VIII	.	.	.	.	40.7	36.6
"	VII	.	.	.	.	45.6	44.8

*History.*

"	X	.	.	.	.	38.0	37.9
"	IX	.	.	.	.	41.8	46.3
"	VIII	.	.	.	.	42.6	47.7
"	VII	.	.	.	.	39.3	38.4

*Geography.*

"	X	.	.	.	.	43.8	42.0
"	IX	.	.	.	.	40.5	49.0
"	VIII	.	.	.	.	43.6	45.5
"	VII	.	.	.	.	45.4	46.2

*Optional.*

"	X	.	.	.	.	46.0	49.0
"	IX	.	.	.	.	47.0	53.2

*Classics.*

"	VIII	.	.	.	.	39.9	38.7
"	VII	.	.	.	.	41.8	38.5

English and Bengali show a decided improvement. In the case of Bengali there is perhaps no cause for surprise. But it is otherwise with English. Most teachers and Head Masters who have discussed the plan with me were of opinion that English could not be taught by this method. If, however, the method of teaching English in class is considered, it will be obvious that it has serious defects. In every branch of the subject the teacher devotes practically all the time to explanation, the students getting little or no practice. The Dalton Plan is almost the reverse of this.

The results in Mathematics has been an equal surprise. With the exception of Class IX the percentage in every class is below the average. It was generally believed that this subject lent itself to the Dalton System more than any other subject; yet the results here seem to point to the contrary. English and Bengali, of course, depend to a great extent on memory work while mathematics needs reasoning, and it may be that the power of memory is more developed in Bengali students than the reasoning faculty.

History was formerly an optional subject, hence only those boys who had a taste for it took it as a subject in the final examination. It was made a compulsory subject in 1925 and every student has now to appear in it.

Classics was compulsory till 1924. It is now optional. The practice in this school is to compel every student in VII and VIII to study the subject. When they come to Class IX, they are at liberty to drop it in favour of another subject. The tendency is to drop classics. The following figures show the number of students who appeared in classics since it was made optional.

1924	.	.	.	.	.	.	.	.	6
1925	.	.	.	.	.	.	.	.	5
1926	.	.	.	.	.	.	.	.	2

This accounts for the difference in the average percentages.

The optionals are Additional Mathematics, Hygiene, Sanskrit and Arabic. The course in these is a two years' course, and students make their choice when they arrive in Class IX.

### *A single class on the Dalton Plan.*

At the suggestion of Mr. West, the Principal of the Teachers' Training College, one of the junior classes was worked as a single class on the plan. In this case one teacher had charge of all the subjects, and the same room was used throughout the day, the pupils not leaving it. In every other respect it was the same. That is, there was no set time-table and the pupils studied each subject as they felt inclined.

The class was started by a research student of the Training College who conducted it for four months. After the summer vacation (June) a member of the staff took over the class.

The results of this class were much better than anticipated. It was believed that the children, being so young,—the average age of the class was  $8\frac{1}{2}$  years—would not make the same progress as if taught by the usual class method. The results however proved the contrary as the following will show:—

English . . .	46.5	64.5
Mathematics . . .	49.7	53.3
Bengali . . .	50.3	58.7
History . . .	51.1	56.4
Geography . . .	51.8	52.1

I believe the difference is the result of application and the steady working of the whole course. In the junior classes breaks through absence retarded a boy's progress to a greater extent than it does in the senior classes.

This class has done so well that I have allowed them to continue the plan this year also in Class V under the same instructor.

#### *Attendance.*

There was a slight improvement in the attendance also. The average daily percentage of attendance for the four classes working the Dalton Plan was 86.5 while for 1924 for the same classes the attendance was 83.3.





# ARMENITOLA GOVERNMENT HIGH ENGLISH SCHOOL, DACCA.

## CLASS VII.—HISTORY.

### Assignment—March (192 ).

Subject.	Item.	Matter.	Units.	Signature.
		<p>You have seen how the early Hindus becoming dissatisfied with the Hindu religion adopted Jainism (68) and Buddhism (57). Some dynasties followed the Hindu religion while others were Buddhists. Buddhists monks and kings preached their religion to all parts of the then known world (58) and for some centuries it had great influence over the people of India; yet it had to yield again to Hinduism, which with the help of the religious reformers (99) of the time gradually regained its influence on the people (97). From this time the history of India is the history of Hinduism as we know it to-day. Has there been any more change in the religion? Have you heard of any religious reformer of the modern times?</p>	2½	
		<p>You have now reached the final stage of the First period (Hindu) of Indian History. So much is uncertain in this ancient period that only great movements and periods can be marked out. You will do well to recapitulate the names of the great dynasties and also the names of the noted kings along with their dates.</p>	1½	
		<p>After the death of Harshavardhan the whole of Northern India became split up (76) into a number of States (cf. <i>গণপ্রজাতন্ত্রী</i> 112—24). Learn the history of these states and also that of the states of Southern India (79). You will find that these states were not on good terms (80) with each other. Their jealousy and rivalry made them an easy prey to a foreign power. But this rivalry helped the growth of literature (95—96). From this time the history of India is mixed up with the history of the Mussalmans. Learn the life and teachings of Mahomed.</p>	2	
		<p>The kingdom of Gazni (81) was a source of danger to Hindusthan. Sabaktagin and his son Sultan Mahmud plundered India (81—83). The Hindu Rajahs of Northern India esp. Prithvi Raj and Joychandra could not unite (88—91) and so one by one (99) these kings were defeated by the Mussalmans. The Hindus of Southern India also suffered the same fate (86—7).</p>	1	

Subject.	Item.	Matter.	Units.	Signature.
		Be prepared to answer the following:—		
	1	Narrate the story of Mahomed's life (74—75).	1	
	2	What do you know of the conquest of Sindh by the Mussalmans?	1	
	3	Describe the different Hindu States of Northern India after the death of Harshavardhan.	1	
	4	What do you know about the rise of the Rajputs? Name the different classes of Rajputs (77).	1	
	5	What do you know of the Rastrakutas?	1	
	6	What do you know of Ghazni (80)? Why did Sabuktigin invade India?	1	
	7	Describe fully the invasions of Sultan Mahamad of Ghazni. What was the effect of his attacks? (cf. अफगानिस्तान pp. 127—137.)	2	
	8	Trace the history of different states of Southern India (87).	1	
	9	Describe the quarrel of Prithvi Raj and Joy Chand (cf. अफगानिस्तान pp. 137—145). How did Prithvi Raj try to check the Mussalmans? Why did he fail? Describe the gradual steps by which the whole of Northern India was conquered by the Mussalmans (92).	2	
	10	Describe the character of Mahamed Ghori.	1	
	11	Trace the changes in the Hindu religion of the paurnanic age.	2½	
	12	Describe the life and teachings of the Hindu Reformers (99—100). What do you know of Albaruni?	1	

# ARMENITOLA GOVERNMENT HIGH ENGLISH SCHOOL, DACCA.

## CLASS VII—MATHEMATICS.

### Assignment III—March (192 ).

Subject.	Item.	Matter.	Units.	Signature.
Arithmetic	1	<p>First Period.</p> <p>Topic: <i>Fraction of Concrete Quantities.</i></p> <p>The method has been clearly explained in the examples worked out in arts. 148 and 149 of S. K. Ganguly's Arithmetic.</p>	$\frac{1}{2}$	
	2	<p>Read arts. 148 and 149 of S. K. Ganguly's Arithmetic.</p> <p>Work out the <i>alternate</i> ones of the sums 37—65 of Ex. 110.</p> <p>Topic: <i>Addition.</i></p> <p>Before you begin, read the Chapter on Positive and Negative quantities (page 16 of your book). For any help necessary you are to come to me in groups. Then you are to familiarise yourself with the following things which you will get in <i>chapter III</i> of your book (page 20).</p> <p>(i) <i>Addition of a positive and a negative quantity.</i></p> <p>(ii) <i>Subtraction of a positive quantity and a negative quantity.</i></p> <p>Work out all the sums of Ex. XII.</p> <p>Work out Nos. 1, 2, 4, 5 of the exercises given in page 19 after Theo. 4.</p> <p>Work out Nos. 1, 2, 4, 5 of the exercises given in page 19 after Theo. 4.</p> <p>NOTE.—Problem টি অর্থ ভুল করিয়া বক্রিমা লইয়া যুদ্ধ করিয়া figure অক্ষিপে; তারপর সেই সব Proposition পড়িয়াছ তাহা ব্যবহার করিতে পার কিনা লক্ষ্য রাখিয়া কাজ আরম্ভ করিবে।</p>	1	
Algebra	1		$\frac{1}{2}$	
	2		$\frac{1}{2}$	
Geometry	1		1	
	2		2	

Subject.	Item.	Matter.	Units.	Signature.
Arithmetic	1	<p><b>SECOND PERIOD.</b></p> <p><i>Topic: One Quantity as a fraction of another of the same kind.</i></p> <p>The method of procedure in the case of sums of this type has been explained in art. 150.</p> <p>Read the section so that you may be able to work out sums of the above type.</p> <p><b>NOTE.</b>—To express <i>one quantity</i> as a <i>decimal of another</i>, first of all express the former as the <i>vulgar fraction</i> of the latter, and then reduce this vulgar fraction into a <i>decimal</i>.</p>	$\frac{1}{2}$	
	2	Work out sums 1—10 of Ex. 111 (Ganguly's Arithmetic).		
	1	For the addition and subtraction of <i>like</i> and <i>unlike</i> terms read arts. 30 and 31.	1	
Algebra	2	Rules for the removal of brackets have been given in art. 32. Read the section so that you may apply these rules in the sums of the next example.	$\frac{1}{2}$	
	3	Work out <i>all</i> the sums of Ex. XIV.	$\frac{1}{2}$	
	1	Read and prepare Theo. 5.	1	
Geometry	1	<p><b>THIRD PERIOD.</b></p> <p>Work out sums 11—32 of Ex. 111 (Ganguly's Arithmetic).</p>	2	
	1	Work out sums 1—17 of Ex. XVI (S. C. Basu's book).		
	1	<p><b>NOTE.</b>—Addition করিয়া মাত্র একই ব্রহ্মের terms যদি পত্র পত্র নীচে রাখিলে এবং <i>like terms</i> ও <i>unlike terms</i> এর মিলে ব্রহ্মের রাখিয়া যোগ করিলে।</p>	$1\frac{1}{2}$	
Arithmetic	1	Read and prepare Theo. 6.	$1\frac{1}{2}$	
	1		2	

Arithmetic	1	<p style="text-align: center;">Fourth Period.</p> <p>For revision you will now take up Ex. 117 which contains many interesting sums.</p> <p>Work out sums 1-10 of Ex. 117.</p> <p>Work out sums 18-27 of Ex. XVI.</p> <p>Read and prepare Theo. 7.</p> <p>NOTE.—Theo. 4 and Theo. 7 are easy for</p> <p><i>Instruction.</i></p> <p>(1) Directions as usual.</p> <p>(2) Do co-operative work.</p>	<p style="text-align: right;">1½</p> <p style="text-align: right;">1½</p> <p style="text-align: right;">1½</p> <p style="text-align: right;">½</p>
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## THE DALTON PLAN ADAPTED TO THE TEACHING OF PLURAL CLASSES IN A PRIMARY SCHOOL.

1. **Introduction.**—The principles of the Dalton Plan have been fully explained in the main body of this work. And it has also been shown how the Plan is working in Assam High Schools. The purpose of this article is to show how the Plan has been used and that with success, to solve one of the most perplexing problems of rural education.

2. **The main problem of Primary Education.**—The problem is stated simply; though it was after much groping in the dark, and with great labour and thought, that some solution was possible to be found.

Our villages are mostly scarce of population; so that the vast majority of village schools have an enrolment of from 30 to 40 pupils; and these pupils spread over the five years of a Primary School Course. Neither can this period be conveniently shortened; for even with this length of time in School, the Primary School Boy can hardly master all the rudiments of scholastic knowledge that is essential in the scheme of things in rural life.

And, the resources of the Local Bodies who control Primary Education are so limited that it is unthinkable for any reasonable time to come that they will be in a position to give more than one teacher for this number of scholars.

And, this one teacher—ill equipped and meagrely paid as he is—has got to face the problem of teaching five classes in a course of multifarious subjects.

Add to this: admissions throughout the year, irregular and unpunctual attendance, complexity of the Sanskrit alphabets and conjoined letters, want of accommodation and equipment in the school and it will not take long to be realised that the task of teaching a Primary School becomes almost a hopeless one.

3. **The problems to be faced.**—And it was to such a task that Mr. Cunningham, our Director of Public Instruction, set me to find a solution. So long ago as in 1917 he wrote:—

“ Attention has been given to the important matter of training the teachers in the conduct of plural classes. This is a matter in which action has to move in advance of experience. \* \* \* \* The first thing to be done is to deal with the charge of two classes at a time. General principles in regard to the conduct of the classes and a suitable arrangement of the routine having been so arrived at by experience, the problem of the teacher who has to deal with three classes at a time may be considered. From this the School (that is, the Normal School) may proceed to deal with the most difficult question of all, that of a teacher who has to manage a complete school by himself, without any paid assistance.”

(Note of Inspection on the Jorhat Normal School, dated the 24th July, 1917.)

And again, in the Quinquennial Review of Education for Assam for 1917-1922, Mr. Cunningham remarked as follows:—

“The task of teaching the simplest course is more than complex enough. Ordinarily the village school master, ill found in vitality and learning and depressed by poverty, is in sole charge of five classes or sections which he has to instruct in all the subjects of a varied course. There is no fixed date of admission. Pupils come in month by month according to caprice or the influence of their horoscopes. The lowest class, a class in which numbers are high, is a collection of little groups, each at a different stage of advancement. And there are four classes above this. \* \* \* \*

Again “with an attendance of 70 per cent. on the average, which sinks lower during seasons of flood and fever, the teacher is faced by a different selection of his pupils every day. Unpunctuality adds to his difficulties.” (Page 61.)

And the Director suggested that in the training of teachers, “the text books are much less importance than the practising schools. \*

\* \* \* The school must break from tradition in its own classes, getting clear away from the conventions of text books which presuppose one class, one teacher, a regular and punctual attendance, clocks in the school and the home and so forth.” (Inspection Note, dated 8th August 1920.)

And he enjoined upon us in most serious words “to put ourselves in the teacher’s place, to face his difficulties of ignorance and conservatism; of poor pay; indifferent health; poor quarters; poor equipment of the school, instead of the individual or class, as the unit; of large numbers and many classes; of admissions at all times of the year, and of unpunctual and irregular attendance in a timeless country side. So doing, we shall realise that Froebel and the rest can be but names to him.” (Quinquennial Review.)

It was with such remorseless pressure in official reports and in private conversations that Mr. Cunningham squeezed out the little educational theory that I managed to gather in the Training College; and set my shoulders, like that of an unwilling bullock, to this work. And I had of course to muster as much grace as I could command, and put myself to it. I am now glad that I did so, and grateful to him that he drove me into it.

4. **Two broad divisions of lessons.**—It is evident, and had at once to be recognised, that a single teacher could not teach more than one class at one and the same time. It therefore follows that the boys must be left to themselves the greater part of the school-day to pick up such scraps of learning as they can manage. What the teacher can do, and must do, is a sort of general supervision. “That is, he is to be more or less a task-master.”



The logical sequence was to divide every subject of study into two broad lines—namely, the portions in which direct teaching by the teacher is essential; and secondly, the ones in which the pupils can go on with the work with only occasional aid from the teacher. In the outcome we got a division of the school-lessons somewhat like what is given in the following statement:—

Names of subjects.	Lessons where teacher's attention is essential.	Lessons which the pupils can mostly learn by themselves.
1. The alphabets, counting and writing in the Infant Class.	Teacher must teach the names of the alphabets, show the proper way of writing them, and teach counting with seeds, sticks, etc.	The beginners can practise the hand on letters engraved on wood. When some letters have been learnt, children can copy them with seeds and afterward on slate.
2. Arithmetic .	New rules are to be explained by the teacher always.	Examples on rules already learnt can be worked out by the boys themselves.
3. Copy writing .	From Class II and above the teacher need only give the copy-slips, and supervise generally.	The boys do the writing by themselves.
4. Dictation .	In Classes II and III dictation is to be given by the teacher; and the correction is also to be made by him.	In class IV, a boy may dictate occasionally; correction can be left mostly to the children.
5. Composition, letter writing, etc.	Teacher's teaching is necessary.	But class IV boys may do a great lot by themselves.
6. Tables .	Only general supervision by the teacher is necessary; but he must correct when the boys finish writing.	Boys should recite them in common outside the school, and build them under teacher's directions.
7. Mental Arithmetic	Teacher should set the problems, and occasionally explain; also examine answers.	With a suitable book, a boy may often be asked to set problems to his fellows.
8. Reading and Literature.	For correction of reading, and explanation of difficult passages, teacher's presence in class is necessary.	Boys should do silent reading, find out difficult words, copy them; Class IV should be taught to make abstracts also.
9. Geography .	The Teacher should explain the terms, and teach boys to draw and read maps.	After sometime, boys can draw maps, find out places, and mark them.
10. Drawing .	Teacher should show correct way to draw, put copies on Black Board, and correct.	Boys may procure leaf and other specimen for drawing; and drawing is generally left to the boys themselves.

Names of subjects.	Lessons where teacher's attention is essential.	Lessons which the pupils can mostly learn by themselves.
11. General Knowledge	Teacher should supplement information gathered by boys; should also examine short descriptions written by boys.	Boys may collect things for study; should find out the qualities of such things; and write short descriptions.
12. Hand work and gardening.	Only general guidance of the teacher is necessary.	Boys should do the work by themselves.
13. Kasrat	Teacher's presence is always necessary.	Though a boy may be asked to command occasionally.

5. **Two sittings of the school.**—From general consideration, it is apparent that the younger the pupil the more the teacher should pay heed to him. From the above division, this truth emerged with greater emphasis. It was at once seen that the lessons for the infants required constant attention from the teacher; and the higher the class the more could they be left to themselves.

But the infants had not enough work to engage them throughout the five-hours school-day; and from considerations of physical and mental development it was not desirable that they should have.

In our schools, however, the opposite is the rule. The higher the class the more attention and time the teacher pays to it. And even though the infants have only a little to do in the school, they have to sit out the whole day in expectation of some odd moments which the teacher may be able to spare from what he and his inspectors think to be more important works in the higher classes.

The result is that they spend most of the time doing nothing, and get tired and listless; and the atmosphere of the school, which should be cheerful and active, turns into dead and dull lifelessness for them. Is it to be wondered at, that in such circumstances, boys learn to dislike school and abhor school-learning, and their guardians get tired of sending children to school and take them away from it? Year after year, reports on Public Instruction have therefore to mourn that less than 50 per cent. of scholars get beyond the lowest infant class; which means that schooling had not the least effect on them, except possibly to teach them hating learning for ever in life.

This state of things had to go. But what were we to do? It was suggested that possibly the infants might be kept for only a part of the school-day in school. This appeared to be a reasonable thing to do. So the school-day, from 11 to 4, was divided into two sittings:—the morning sitting from 11 to 1½; and after an interval of 30 minutes, the afternoon sitting from 2 to 4.

The infant classes are given all their lessons in the morning sitting, and at about 1½ they are dismissed. The higher classes,

as far as practicable, are given for the morning sitting such lessons as they can be expected to do by themselves. (*Vide* statement given in paragraph 4.)

In the afternoon sitting there are only three classes; and about half the number of children, belonging to the lowest classes and mostly the noisy element, is eliminated. The teacher can now with comparative ease, take up these classes in such lessons as demand his more direct and careful attention. He gets less noise, less pupils, more space, and more steady attention; and all these make for more solid work.

This method is working completely satisfactorily in our practising schools; and we have always been able to promote the infants to higher classes after one year's teaching, and sometimes even in six or eight months.

After a careful examination of this system, Mr. Cunningham wrote on August 8th, 1920:—

“The Practising Schools meet at 11. In School I, classes, IA and IB get particular attention in the early part of the day. At 1-40 the schools dismiss. Class I does not come back. For the rest of the day the master is free to attend, without distraction, to the upper classes. This is an excellent arrangement.”

**6. Principles for framing routine for the teaching of plural classes.**—In other ways also we were satisfied that these simple innovations gave very good results. And as result of these experimentations, the following simple principles emerged, for framing routine for primary schools, with one, two, or three teachers; in fact whenever a single teacher may be required to take more than one class. These are:—

- (i) *Two school sittings.*—The earlier sitting is to be for 2 to 2½ hours. In this sitting the lowest two sections are given all their lessons, and are then dismissed; and the higher three classes work by themselves under general supervision of the teacher. The later sitting is for another 2 or 1½ hours, when the higher classes are given the lessons requiring direct teaching.
- (ii) *Division of lessons into two groups.*—All the school subjects may have two broad divisions of lessons: namely, lessons requiring direct teaching, and lessons requiring only general supervision from the teacher. The lessons have to be so arranged in the Routine that at any given time the teacher may have only one lesson requiring direct teaching.
- (iii) *Combination of classes.*—For the above purpose, in many lessons, classes II and III, III and IV, and IA and IB may be combined. Lessons on General Knowledge, Geography, Story-telling, Letter-writing, Mental Arithmetic, Dictation, etc., will be found to be amenable to such treatment.

- (iv) *Broad division of school-day into four periods.*—Ordinarily, in schools, the duration of class periods is for 45 or 50 minutes. And the Handbooks on School-Method prescribe 20 to 35 minutes for children. A discussion of merits or otherwise of such division of time is out of place here. What concerns us is that in an ordinary village Primary School to try to keep to such minute divisions of time is both impracticable and injurious. Impracticable, because for one thing, the village does not know a clock: that small part of it which does, uses it as a sign of respectability or of urbanity. Injurious because, if we want to adhere to such division, it is found in experience, that the lessons cannot be properly finished.

What is to be done, therefore, is to divide broadly the school-day into 4 periods. So long as the lessons fixed for the first period are not properly done, children are not allowed to begin the lessons of the second period; and until they finish the lessons of the second period, they do not take up lessons of the third period; and so on.

This principle allows of much flexibility in the routine. Sometimes all the lessons are finished a few minutes earlier, and some times a few minutes later. But if the lessons have been properly arranged, there is hardly a difference of more than a quarter of an hour.

A copy of the routine, now being worked out in our Single Teacher Primary School, is appended as illustrating the above principles.

**7. Individual work.**—These methods were good so far as they went. But they did not go to the root of the matter. The outer difficulties were perhaps solved; but the inner ones, those that really mattered, remained. We could perhaps satisfy our Inspectors, but we were not satisfied ourselves.

When the boys were left to themselves to work, much dis-organisation and noise would occur. Some boys finished their work, or half did it, too early; and they started the mischief. The teacher would be disturbed every other minute, when he was taking some other class by some boys coming up for correction, by others asking for more work, and by others again by preferring petty complaints, and by the rest by making noise out of sheer exuberance of spirit.

This was very perplexing; and at one time we were led to think that such disturbances were inevitable concomitants of circumstances in a school where one teacher had to minister to the scholastic needs of a jumble of little children at such multifarious stages of intellectual development.

But a solution was waiting, though we knew it not. In 1922 and 1923, the Dalton Laboratory Plan was being discussed in England and America; and its echo reached us faintly in this distant corner. It was in a private conversation that Mr. Cunningham first threw down a hint that perhaps there lay a solution. But with the

characteristic distrust of a timid mind for anything novel, I felt that the Dalton Plan was perhaps all right for schools in a rich and prosperous country, where teachers were proud of their position, had sufficient of the world's goods, and where both children and guardians understood and valued education. But for such poor specimens of schools, as of ours: well, the less said the better; forgetting the teaching of Psychology that eagerness to learn and to do is the most characteristic mark of childhood all over the world, and that the human mind finds the completest satisfaction at the result of activities obtained by its own effort.

Fortunately Mr. Small happened to be at Shillong at the time. He was then Inspector of the Surma Valley Division. In a private talk he told me casually that it was then a year that he had been experimenting with the Dalton Plan in the Sylhet High School, and that with encouraging results.

This put heart in me. I sent for details from the Sylhet High School; and read the literature I had over again.

A few weeks after this Mr. Small took transfer to the Assam Valley Division, and he was soon at Jorhat. The Jorhat High School soon caught his enthusiasm, and they started Dalton Work in their school.

Fortunately for us, I had at that time as Headmaster of my Single Teacher Practising School a youngman of intelligence—Srijut Adyanath Sarma—who was not afraid of an innovation. He consulted me and got hold of the central principle of the Dalton Plan, namely Individual Work, and made out an assignment for one week for his Class IV boys; and set them to work.

It worked like magic. So far as the teacher was concerned, Class IV was practically eliminated. The children got the week's work; and when the teacher would be busy with other classes, they would go on working their assignment, till he was free to attend to them. The disturbances and the noise vanished; and there appeared an atmosphere of real work. The teacher's work became less tiring, less irritating; and more fruitful, though by no means less heavy.

The work was critically examined by the Inspector of Schools, and seen by the Director of Public Instruction. They expressed themselves satisfied. We got courage to proceed with the experiment; and the result I give in Mr. Small's words:—

“One great benefit that will be derived from a system of this nature is that the writing out in advance of the work to be done in a definite period of time will aid the teacher in systematic teaching and in apportioning his time regularly throughout the year. It will help him to avoid a slackening of work in the early months of the year, and a hurried cram before the Promotion Tests. The other benefit is that, as soon as the boys in Class IV become accustomed to working mainly by themselves, as the boys here have evidently become, the teacher is relieved to that extent of class work, and is enabled to

devote the time gained to the lower classes, which have hitherto been comparatively neglected."

(Inspection Report, dated September, 1924.)

**8. The Dalton Plan adapted to the work of Primary Schools.**—I believe, I can now usefully add a word as to how the Assignments for our Primary Schools are prepared. I need not give any detail; since the regular method of preparing assignments is well-known. I can therefore, conveniently be brief; and I shall only note the variations from the ordinary Dalton Method.

- (i) The Dalton Plan Assignment is a contract of one month's work. We prefer to give one week's work at a time. For children, it is not wise to give too much to be done at once.
- (ii) The contract idea is absent from our work; the children are not required to sign any contract.
- (iii) Our assignments are not too detailed; neither are they the simple enumeration of the lessons. We steer a middle course. General indication of the work to be done is given. Things which the children are apt to overlook are put in the assignments; such as, difficult words, common errors in spelling, things to be committed to memory. But no attempt is made to explain things in the assignment itself; the boys have to get all their explanations from the teacher.
- (iv) In Assamese we have only a few reference books; and these few even are not accessible to Primary School Boys. So that reference to other works than the Text Books is almost non-existent. The teacher helps when necessary.
- (v) General lessons to elucidate difficult portions, to explain new rules (of Arithmetic, etc., and to supplement information from about half the school work.
- (vi) Written works to be shown to the teacher are separately put in the Assignments, easily to catch the eyes of both teacher and taught.
- (vii) Extra work is given to those pupils who finish their month's work (not week's) before time. This is sometimes put in the assignment; but very often is given by the teacher orally.
- (viii) Unless a boy can do his month's work, he is not usually allowed to proceed to the next month's work; but full discretion is allowed to the teacher to deviate from this principle in special individual cases.
- (ix) We use only one graph, namely the individual graph. All the work is marked on this graph, which is in manuscript.
- (x) Markings on the graph is given in three colours—red for good, green for fair, and blue for middling work; bad work is not accepted.

- (xi) Over and above this graph-marking, marks are also given for some class works.
- (xii) In giving Individual Work, it should be borne in mind that the assignments are to be such as can be worked out by all the boys of average merit belonging to a particular class. The duller ones may take more time; but all the work should usually be within their capacity.

A sample assignment and a graph are appended to this note in way of illustration.

Work on this method is given in Class IV only; but the principle is followed in Class III and Class II as well, though not with such details. These classes are given lessons for the day beforehand, and they can go on with their work, when the teacher is busy otherwise than in their class.

I want to add one word. Let no one imagine that the teacher has a good time of it, while the boys are left to work by themselves. Far from it. He has got to be very busy indeed, and to have very watchful eyes to be able to run this work smoothly. The only difference is that his work now keeps all the children busy, while in old ways he used to busy himself all right, but could keep only a few boys busy at one time. That the conditions of work in an atmosphere where every one is doing something are infinitely better than in an ordinary school does not require stating.

**9. Co-operation and assistance from the pupils.**—My note perhaps will not be complete if I omitted to mention how the children are made to co-operate and help in the teaching work. The Monitorial Principles are of course well known all over the educational world. So I shall be brief.

These principles are:—

- (i) Discipline the boys in fixed habits about sitting, standing, keeping their books and other belongings in proper way and in their fixed places, *e.g.*, leaving shoes and umbrellas neatly arranged in the verandah. This adds to the beauty of the place and generates an atmosphere of orderliness, where work and system appear to be the general rule.
- (ii) Give the children enough of work to do. When all the set work is finished, which however must not happen very often, they can draw as they like, write what they please. For this the slate is the most useful instrument a child can possess. When a class is in want of this sort of work even, they can go out and play. They must in no case be allowed to sit idle and loll in the class. For this purpose some simple devices are of much value. They are briefly noticed in a subsequent paragraph. (Paragraph 10.)
- (iii) Institute the Class Captain System. The Captain should be made responsible for work, discipline, and distribu-

tion of and storage of articles required for his class; *e.g.*, pens, seeds, writing books, etc.

(iv) Let boys help, question, and explain to one another in the difficult lessons.

Boys can be formed into groups of two, and each pair may be allowed to prepare their lessons together and examine each other.

In Dictation, a boy can occasionally dictate. In Geography a class can study the map together. In recitation, one boy can lead and the rest follow.

Thus in a hundred ways, an alert teacher can keep the school engaged and make it instinct with life and joy. Care should be taken that one and the same boy is not made into a sort of unpaid pupil-teacher.

**10. Equipment.**—I have now to add a word about our equipment, lest some reader may imagine that we are working under conditions that are unavailable for our rural schools.

Nothing of the sort; except that our teachers are better qualified than the ordinary run of village school-masters. This had necessarily to be; for, to conduct an experiment, a better type of man than those who would follow the Rule of Thumb arrived at by such experiment have always been granted.

Our enterprise in the direction of elaborate equipment was cut short by the same pitiless Mr. Cunningham, who would not allow us to raise our head to the sky, when our work lay on this mundane earth. He allowed us the minimum equipment that might be always available for our village schools.

We allow each teacher two good black boards, and also good white chalk to write with. The outlay is not extravagant, and yields excellent results. The necessity is obvious.

Each school is provided with a series of text books, and one set of maps, consisting of the District, the Province, India, and the Empire. Some of those supplied are made in the Normal School; but each teacher under training are required to make a set of these maps along with other manual works.

Children sit upon Dharis and write upon ground desks. The teacher is given a table and a chair; and there are a few shelves for books, etc.

The house is of the standard size adopted for Assam Vernacular schools.

Other equipment we have. But they are all hand made and cheap, or cost nothing. Among them are sticks of various lengths and sizes, seeds, card board boxes obtained gratis from some friendly shop-keeper, blank cards (for Arithmetic Work), playing cards for counting and arithmetical games, writing slips, bamboo-handles for pencils, reed pens, sand, and such other articles which may be had everywhere for the mere looking for.

All these are pressed into our service; how, of course is a different matter; and will not be attempted in this note. But I think



that all teachers who have to do with such work are more or less familiar with this sort of method.

11. **Results.**—I shall now conclude with a brief statement of results achieved. One of the standing problems of Primary Education is the very low—less than 50 per cent.—promotion from the lowest section to the next higher section or class. In the words of Dr. Thomson, "The figures show that only about 14 pupils in every 100 survive from Class IA to Class IV. The majority of the remaining 86, it is to be feared, must lapse into illiteracy. The small percentage promotion from Class IA to Class IB less than 50 per cent. is also a matter which calls for serious attention from all inspecting officers."

(a) *Promotion.*—The following figures will tell their own tale. Those who are acquainted with our primary schools know that boys remain in the lowest class for 2, 3, and 4 years, and still do not know the alphabets. In our schools, in 4 to 6 months fresh boys, having no previous knowledge of a single letter, are enabled to read and write simple words. This however relates more strictly to another method the method of teaching the alphabets—and may be left over from this note.

Year and School.	Number admitted into Class IA 1st year.	PROMOTION FROM CLASS.				Completion of Five Years' Course.
		IA to IB 2nd year.	IB to II 3rd year.	II to III 4th year.	III to IV 5th year.	
1	2	3	4	5	6	7
1920.						
School I . . .	4	4	4 & 3	6	5-2	2
School II . . .	13	13-3	10 & 1	11	7	7
1921.						
School I . . .	4	4-1	3 & 8	9-3	6-2	4
School II . . .	9	9 & 2	10 & 2	10 & 5	13-6	6
1922.						
School I . . .	3	3 & 1	4 & 3	6-3*	3-2	1* Promoted from Class II to Class IV.
School II . . .	5	3 & 7	8 & 3	10-4	6	...
1923.						
School I . . .	3	3 & 3	6 & 4	10-1	...	...
School II . . .	13	11 & 3	13 & 1	14 & 1	...	...
1924.						
School I . . .	2	2 & 5	6 & 2	...	...	...
School II . . .	13	12 & 4	15 & 1	...	...	...
1925.						
School I . . .	8*	7	1* Promoted direct to Class II.	...	...	...
School II . . .	11	10 & 6	...	...	...	...

N.B.—(1.) \* denotes new admission into a class from another school.

— denotes transfer from a class in the middle of the year or after promotion.

(2.) Some boys take admission so late as September, October, and even November.

The above record, I venture to believe, is unique for any primary School.

(b) *Regular attendance and punctuality.*—This is another problem for a primary school. Figures show that average attendance is about 84 per cent. in the Practising Schools. For the whole of the Province it is 70 per cent. Ours is not a very good record. Many of the boys attend from neighbouring villages; and even in the town many guardians are apt to be somewhat slack in the matter of attendance of their children who are sent to primary schools. Besides absence for festivities at home or in the village, and for sickness during the rains is pretty common all over the country.

We have troubles about punctuality; but probably less than in a village school. Strictness has been found to be a good remedy.

An attendance record hung up in the class-room is a good encouragement for regular attendance. Such boys as are present throughout the month are marked with an asterisk.

The teachers often enquire after a boy when he happens to be absent for more than 2 or 3 days together. This also produces good result.

(c) *Interest of scholars.*—In the general criticism of the Dalton Plan, it is said that boys do not read even under the fear of the rod; how can they be expected to work when left to themselves. Apart from the fact that it is a mistake to suppose that in the Dalton Method of work boys are left to do what they please, the above statement, has perhaps good logic, but bad psychology to support it. I have found in these two years that boys are more eager to learn when given Individual Work. And I have noticed a few boys working in the half-hour's recess to complete their month's assignment in time.

(d) *Opinions of Inspecting Officers.*—Lastly, I may be permitted to quote the following remarks to show how the system is working in the judgment of competent and none too lenient critics:—

After about ten week's work under this plan, Mr. Cunningham wrote:—

“Time permitted of a visit to only one of the Practising Schools—the one-teacher school. The work was excellent, the methods most interesting. Everytime I come here, I find that further progress has been made with reference to my note of 24th July 1917.” (Inspection Report.)

On 20th September 1924, Mr. Small wrote:—

“In March, an experiment was commenced in Practising Schools Nos. I and II on the lines of the Dalton Plan.

The boys of Class IV have the work for a week given them in advance, and are allowed to complete it at their own time, merely approaching the teacher for assistance, when

necessary, and bringing him the completed work for correction, testing, and marking.

During my present inspection, I examined the work that has been done during the last few months by the boys of Class IV under this system; and am glad to be able to say that it was distinctly creditable both in quantity and quality. All the work was neat and clean, hand-writing was good, and in general the standard reached was above the average." (Inspection Note.)

After more than a year Mr. Small again gave a thorough inspection to these schools. As he was then conducting the practical examination of the teachers under training, he was enabled to examine each boy very thoroughly in all the subjects. And he wrote the following in December 1925:—

"The modified Dalton Work being done here is most successful.

The disturbance caused in the school by the continual change of teachers during the practical examination did not appear to affect the children in Class IV at all.

They were all quietly engaged in their own work, seldom even looking up at the visitors to their room.

If similar method can be introduced throughout the Division the work of our village school teachers will be very considerably simplified." (Inspection Report.)

*Daily Routine of Practising School No. 1, Jorhat, 1926.*

Day.	Class.	1st period about 1½ hours from 11 a.m.	2nd period about 1½ hours from 12½ p.m.	3rd period about 1½ hours from 2 p.m.	4th period about 1 hour from 3½ p.m.
1	2	3	4	5	6
Monday	IV	Geography .	Writing and General Knowledge.	Reading .	Mental Arithmetic and Kasrat.
	III	Arithmetic .	Drawing and General Knowledge.	Dictation and Reading.	Reading and Kasrat.
	II	Object Lesson	Arithmetic and Reading.	Writing .	Mental Arithmetic and Kasrat.
	IB	Reading .	Arithmetic and Writing.	.....	.....
	IA	Letter-formation.	Tables and Reading.	.....	... ..

Day.	Class.	1st period about 1½ hours from 11 a.m.	2nd period about 1½ hours from 12½ p.m.	3rd period about 1½ hours from 2 p.m.	4th period about 1 hour from 3½ p.m.
1	2	3	4	5	6
Tuesday	IV	Arithmetic .	Dictation and General Know- ledge.	Drawing and Reading.	Reading and Kasrat.
	III	Arithmetic .	Writing and General Know- ledge.	Reading .	Geography and Kasrat.
	IB*	Writing .	Reading and Arithmetic.	... ..	... ..
	II*	As on Monday.		Dictation	Tables and Kasrat.
	IA	Reading .	Letter forma- tion and count- ing.	.....	.....
Wednesday	IV	Arithmetic .	Letter writing and General Knowledge.	Reading .	Geography and Kasrat.
	III	Accounts and Tables.	Gardening and Hand-work.	Composition .	Reading and Kasrat.
	II	General Knowledge.	Recitation and Arithmetic.	Writing .	Reading and Kasrat.
	IB	Arithmetic .	Writing and Reading.	.....	... ..
	IA	As on Tuesday.		.....	.....
Thursday	IV	Arithmetic	Gardening and Handwork.	Composition .	Reading and Kasrat.
	III	Geography .	General Know- ledge and Letter Writ- ing.	Reading .	Arithmetic and Kasrat.
	II	Reading .	General Know- ledge and Arithmetic.	Drawing .	Dictation and Kasrat.
	IB	Drawing .	Tables and Re- ading.	.....	.....
	IA	Tables .	Reading and Writing.	.....	.....

Day.	Class.	1st period about 1½ hours from 11 a.m.	2nd period about 1½ hours from 12½ p.m.	3rd period about 1½ hours from 2 p.m.	4th period about 1 hour from 3½ p.m.
1	2	3	4	5	6
Friday .		From 11 to 1.		From 2 to 4.	
	IV	Reading and Manuscripts Reading.		Tables, Bazar Accounts, General Knowledge and Kasrat.	
	III	Arithmetic and Writing .		Mental Arithmetic, Reading, and Kasrat.	
	II	Gardening and Recitation .		Play, Tables, Reading and Kasrat.	
	IB	Tables and Reading .		.....	
	IA	Seed Work and Writing .		.....	
Saturday		From 11 to 2.			
	IV	Arithmetic, Dictation and General Knowledge,			Story-telling.
	III	Mental Arithmetic, Reading and General Knowledge,			Ditto.
	II	Transcription, Arithmetic, Drawing,			Ditto.
	IB & IA	Clay model, General Knowledge, Action song,			Ditto.

**ASSIGNMENT FOR CLASS IV FROM 8TH FEBRUARY TO 13TH FEBRUARY 1926.**

*Practising School No. I.*

*Literature.*—1. "Invasion of Assam by the Ahoms." I shall give you a model lesson on reading on Monday. You shall have to read to me on Wednesday, when I shall explain the difficult portions.

2. Note the following spellings and the meaning of these words. (Here follows a list of words.)

3. Learn the meaning of the following words and phrases.

4. Consult map and find out the following places:—Burma, Patkai hills, Kaliabar and Dimapur.

5. On Saturday, show me the answers to the following questions written on the slate:—

From what place the Ahoms did originally come? What district lies to the east of Sibsagar? What is the name of the hills to the east of Assam? Where is the kingdom of Pung? Who was the first king of the Ahoms? Who among the Ahom kings gave the largest gifts to Brahmins and Pandits? Who was Turbak?

*Poetry.*—I have explained to you the poem called Larakal (boyhood); On Friday, render it into prose before me; I shall ask.

*Hand Writing.*—Take a copy slip from me; and write. Must avoid scribbling.

*Dictation.*—Take dictation from page 14 of the lesson for this week. The Captain of Class III will dictate. I shall correct and mark.

*Essay.*—We have already discussed Railway in class. Write a short description on the lines already given.

*Arithmetic.*—Do all the sums of Examples 20 and 21 on slate; those I have marked should be worked out in book.

*Mental Arithmetic.*—On Friday I shall explain the hints by which you can easily find out how from the price of a seer, the price of a maund should be calculated. In the beginning you must work out on the slate the price of a maund, when the price of a seer is Rs. 1-9-6.

*Tables.*—Learn 15 and 20 and 16 and 20; and write on slate. I shall question.

*Accounts.*—Take an account sum from me and work out; if time permits, I shall explain how abstract account is to be made.

*Geography.*—Read about the Sibsagar district from the Bhugol-path. Draw a map, mark the three sub-divisions, all the important places given in the book, showing the thanas in red. Show me on Saturday, when I shall question you.

*Object Lesson and General Knowledge.*—I have already talked to you about the railway. Write out and show me what a junction and a station is.

You have already learned something about Potato; write out and let me see what you know about it.

*Drawing.*—Procure of leaf of jack-fruit tree; draw in natural colour.

*Hand Work.*—Take scissors and paper from me and cut out two envelopes and a fan.

#### *Work to be Shown to Teacher.*

1. Exercises on literature.
2. Hand writing.
3. Dictation.
4. Essay.
5. Note on object lesson, etc.
6. Arithmetic sums.

## A TRAINING SCHOOL FOR VILLAGE TEACHERS, MOGA, PUNJAB.

That we learn mainly through experience is accepted as a truism. But children in school seldom have opportunity to acquire knowledge in this way. Educational psychology has taught us that children learn best through active experience attended with satisfaction; and a growing number of educators are making practical use of this principle in the class-room. The traditional formal methods of teaching stand condemned because they do not conform to the known processes of learning. Progressive teachers are finding it practicable to introduce the activities and situations of real life into the class-room and help the children to learn by doing.

At Moga in the Punjab is a school which whole-heartedly accepts this common-sense principle. It rules in the life of the school, and conditions all the teaching. It is not uncommon to find the conception of the importance of learning through active experience recognized in the extra-curricular activities of a school, such as the Boy Scouts, the Junior Red Cross, the games, and the literary societies. It is commonly accepted that the way to teach a boy to be trustworthy, is to give him opportunities to act in a situation which requires trustworthiness. The way to teach him to use his mother tongue effectively is to guide him in his participation in literary activities in which he strongly desires to excel. But schools are still rare in which arithmetic is taught by means of situations which require its use, or history is taught in close connection with the problems and present needs of the pupils. At Moga, the ideal is to teach as much as possible of the formal subject-matter through projects undertaken by the boys. In so far as this ideal is realized, interest in studies is neither artificial nor external; it is whole-hearted and purposeful, because it is engendered by activities chosen and planned by the boys themselves. The results of the teaching and the life of the school are shown not only in the mastery of facts, but in the growth of habits of study and thoughtful judgment, attitudes of independence, initiative and helpfulness. In other words, the boys at Moga are prepared to meet life, because they meet real, rather than artificial, experiences in the school.

The authorities at Moga do not conceive of this type of education as limited to the class of pupils taught at this school, but as applicable to all schools. They consider that it is the right of each child to be given the type of education that will afford the fullest and richest development of his personality. Moga is a revolt against the idea that the training of the hand and the training of the brain, are the work of two different educational institutions. We must take into account a whole boy, a boy with

hands and feet as well as brains. In describing his great school, Sanderson of Onndle says:—

“Creative education demands that schools should be brought into harmony with the community life, and should take part in the industrial and economic life.”

“I would make the suggestion that we must not keep the life of school too much separated from the working life of the community. . . . . When boys and girls go home, even to the humblest home, their parents should find that some part of the school life is associated with their own life and work. This principle should modify the kind of work done in schools, so that when boys leave school they should have already taken part in the work which they go out to do.”

“Is the education for dominance and possession destined to survive? Should not service be the ideal for all schools creativeness and not possession? If so, then account must be taken of this ideal in educational reform.”

*Purpose of the School.*—The Training School for Village Teachers is situated at the town of Moga, Ferozepur District, Punjab. It is a rural community middle school with a normal training department and a primary school for practising and demonstration purposes. There are four years in the primary school, four years in the middle school and one year in the normal course. It was started by the Punjab Mission, Presbyterian Church in the U. S. A. as part of its work for the uplift of the out-castes of the Punjab who are turning to Christianity in great numbers. The work is now under the direction of a board in which the Indian Church shares the responsibility equally with the Mission. The responsibility for the education of these village Christians is a heavy one. The purpose of the school at Moga is to prepare selected village boys for the leadership of their own communities. The majority of the students who finish the course become teachers of village schools.

The school plant consists of about 55 acres of land, 45 of which are under cultivation, with three wells, two silos and stables for cattle. The buildings consists of a main school building with 9 well-lighted class rooms, an agricultural and industrial room, a main hall, library, and office; 3 hostels; quarters for married students; teachers' houses; headmaster's house, principal's house; and a model village school building. The value of the present plant is about Rs. 1,75,000.

The staff consists of 3 missionaries, the principal, his wife, and the vice-principal, the headmaster who is theologically trained, 3 teachers with S. V. certificates, four Moga trained and Government certificated teachers; one trained agricultural master, a carpenter and a tailor who teach village home industries and one woman teacher for the women's school. As practically all the needs of the school are met by student labour, there are only three servants



employed—a gardener who helps supervise the primary boys' work in the fields, an old man as assistant gardener, and one sweeper.

The enrolment of the school is about 150, of whom about 25 are in the Normal Class, and the remainder are about equally divided between the Middle and Primary departments. Practically all the pupils are boarders. They have nearly all come from extremely poor homes, and usually the parents give little or nothing toward the cost of their education. There are indications, however, that these people are beginning to appreciate the value of education for their children, and are showing themselves more willing to help towards the boys' expenses. The boys come from all over the Punjab, and a few, by special permission, are admitted to the Normal Class from other provinces outside the Punjab. The pupils are mainly Christians, though non-Christians are admitted. A women's school is maintained for the wives of the married students, and other women of the compound.

*History of the School.*—The school was founded by the Rev. R. H. Carter, M.A., and owes much to his wisdom and educational ideals. His plan was to establish a school for village boys with a training class attached, a school in which the boys would live under simple village conditions, do their own cooking and washing, and receive, in addition to a good general education, especially suited to village needs, practical training in agriculture and ordinary village trades. The purpose of this industrial training was partly to keep the boys in touch with village conditions and to make them an economic asset to their community, partly to disabuse their minds of the idea that an educated man should not work with his own hands, and partly to enable them while at school to contribute as much as possible toward their own education.

These ideals had been partly realized when Mr. Carter had to return to America for family reasons and the Mission selected W. J. McKee, C.E., M.A., to carry on his work. About this time the Frazer Commission on Village Education was visiting India and calling attention to the necessity of improvement in rural education. The Punjab Mission planned an advance along these lines. After special study during his furlough in America, Mr. McKee took over charge in 1920. The school now entered upon a new era of development. New educational methods were introduced; the courses in agriculture and simple village trades definitely worked into the curriculum, and normal training established on an entirely new basis, resulting in the production of a new type of teacher and rural worker, which has given Moga its reputation. Mr. McKee's success as an educator was recognized by Government, and he was awarded the silver Kaiser-i-Hind medal, for his services to rural education, in 1922. In 1924 Mr. McKee was compelled for family reasons to return to America, and the present principal took over charge. Mr. Carter had returned to Moga in 1923, and has since shared the management of the school. He is now Vice-Principal.

Moga owes much to the encouragement and support of the Department of Education of the Punjab. The school is recognized as an experimental school, and is allowed freedom to work out a curriculum suited to rural conditions, and to use methods often radically different from those of the traditional school. The requirements of the educational code are, however, fully met. Candidates are sent up for the Vernacular Final Examination, and the percentage of students passing has been excellent. A special examination based on the Moga normal course syllabus is given to the normal class graduates, and a special certificate, recognized as practically equivalent to the Junior Vernacular training certificate, is granted. The percentage of successful candidates has been always excellent; in 1925 and 1926 it was 100 per cent. A grant-in-aid is given for the main school and the normal class as well as for the agricultural department and a grant was given on the main school building. Beyond this, the Director of Public Instruction and the officers of the educational department have given much appreciated help through their advice and interest.

It may not be out of place at this point to quote some recent remarks of distinguished visitors, for the purpose of showing how much the school owes to the interest of Government officers. The school is proud to have some small share in the remarkable progress in primary education of the last few years in the Punjab.

*From the Inspector of Schools.\**

With a view to affording my colleagues an opportunity to study the up-to-date and practical methods of teaching literary and vocational subjects I invited the members of the Divisional Educational Conference to assemble at Moga on 23rd, 24th and 25th November. On the 24th they all visited this fine institution and Mr. Harper very kindly showed them round the farm, the trades workshop and the classes. They closely studied the teaching of Class I to satisfy their doubts about the practicability of the project method in teaching reading. I am glad to record that they all went back eminently satisfied. The vocational training both in agriculture and trade work was a treat which they all enjoyed immensely.

I need hardly add my measure of praise for the good work done by this good institution. It is an object lesson to those who have eyes to see and are interested in rural education.

27th November 1925.

*From Two Governors of the Punjab.*

Having heard so much of the school I was most anxious to pay it a visit. I need hardly say that I have been most interested,

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\* S. B. Sardar Bisan Singh, B.A., I.E.S., Divisional Inspector of Schools, Jullundur Division.

and am glad to find how much the school has been inspiration both to Government Officials and to Missionaries from other parts of India.

26th January 1924.

I need not say that I was particularly interested, not only in the working of the project method of education, but also in the methodical instruction given in agriculture. The former must go far to relieve education of its purely routine aspect, and must add a great vitality and stimulus to its processes. The latter is the first effort of the kind I have had the opportunity of seeing in the Punjab, and I have not the smallest doubt that it is of the highest value. I wish the school and its management every success; it seems to me that it is a pioneer in work which we might with advantage extend in the Punjab.

21st July 1925.

*The Curriculum.*—The experiments at Moga are directed toward evolving a type of education which will succeed in village schools. The curriculum with which we are working is described in the definition adopted by an all-India conference on rural education held at Moga in 1922; i.e., "A Rural Community Middle School is a school which seeks to use the activities and valuable interests of the village as means for educating rural boys and girls for more abundant living and service in their communities. All the work of these schools, including the vocational or practical work, should be closely related to the pupils' village environment and so far as possible should grow out of it. The vocational work should not be a separate entity but should be an integral part of the curriculum, enriching it and having as its constant aim, (along with the other work of the school), the bettering of present village conditions. Such a school differs from an industrial one in that it is concerned with a broad curriculum and the uplifting of the community through enriched and consecrated personality, while the latter has as one of its principal aims the training of pupils for a definite trade through which they may become self-supporting members of the community."

The curriculum which is being evolved is based so far as possible upon the worthwhile interests of village boys. The change in the curriculum are, however, being made gradually, and the ordinary course of study is covered in addition to the new curriculum material. The enrichment of the curriculum is along the lines of nature study, health education, hand-work, practical mathematics, more reading and composition, etc. The teachers strive for a minimum of memorizing text-book material, and a maximum of observing, discovering, constructing, judging. Moga boys are taught to live a real life in the world in which they find themselves.

A critical observer has thus commented upon the class work. "I have been asked several times after describing the agricultural and trade work carried on in Moga, what curtailment had to be made in the ordinary curriculum to allow of this being done. It

will probably come as a surprise to many to be told that not only are all the demands of the Punjab curriculum met with very excellent results but that a great deal more is covered. And this is very largely the result of the Project Method which is adopted throughout the school."

*Learning by Doing.*—The school endeavours to use those methods of teaching which are based on recent results of the scientific study of educational processes. The so-called "project method" is not used exclusively, but the effort is made to have the point of view on which this method is based, control our teaching as far as possible. For example, we endeavour to present the fact to be learned in a situation that is, as nearly as possible, like a situation in out-of-school life. Dr. Dewey has said:

"When a pupil learns by doing he is re-living both mentally and physically some experience which has proved important to the human race; he goes through the same mental processes as those who originally did these things. Because he has done them he knows the value of the result, that is, the fact. A statement, even of facts, does not reveal the value of the fact, or the sense of its truth—of the fact that it is a fact. When children are fed only on book knowledge one 'fact' is as good as another; they have no standard of judgment or belief."\*

Take for example a boy reading in his text-book that 8 kanals make one ghamao. When he does an example, he is apt as every teacher knows, to substitute 4 or 6 for 8. The fact as he read it in the book did not stand for anything that goes on outside the book. It is just one fact of many that he reads and that may or may not stay in his memory. But the Moga boy who calculates the size of his field plot in kanals and ghamaos, and with his class divides a big piece of land into plots, one kanal in size, *knows* that 8 kanals make a ghamao. He would laugh at anybody suggesting that 4 kanals make a ghamao. The difference in the two cases is that the average school boy "*has a result without the activity of which it is the result.*" To the Moga boy the fact is the result of an experience.

Again, a boy who has tried to memorize a table of weights, may be confused when asked the number of chattacks in half a seer; and not be greatly disturbed by his mistake. But when he and his class-mates are running a real shop in the school-room, he suffers for his mistake. Tables which are *used*, are quickly learned. In the regulation school, the boy who gets six sums out of ten correct is doing passing work in his class. He has learned that the teacher is satisfied with that quality of work. His aim is to please the teacher, and six to nine times right, out of ten, pleases the teacher. But at Moga he quickly learns that if only eight out of ten transactions were correct, the class shop would soon be bankrupt. So the boys set 100 per cent. accuracy as their own standard. They know the value of the arithmetic fact. Arithmetic to Moga boys is a real part of their life.

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\* Schools of To-morrow, by John Dewey.

The above is a fair example of the principle which guides our efforts to improve teaching methods. Whenever it is possible, we teach through the use of a project, that is, an activity in which pupils whole-heartedly engage, because they themselves have purposed and planned it. The rôle of the teacher in these activities is that of a guide and friend rather than an autocrat. He helps the boys to choose activities that are rich in educational value. He helps them to carry out their purpose efficiently, to gather and master the necessary information, to learn good habits of work, to complete their project, make a permanent record of it, and judge of its success.

Since one of the essential factors of a project is its spontaneity, we cannot have a fixed "project curriculum." Often projects are repeated, but they must always be chosen by the new class. Illustrations of typical projects used at different times will help to make clear the method, and give some idea of the development of the curriculum. The village home project was used most successfully in the first half of Class I, for several years. The vegetable shop project as described, was the activity of Class IV, in 1925-26. The project on Moga School is being taken up by Class V in 1926, while the hospital project was carried out by Class VI in 1925-26. Three of the following descriptions are taken from the report of a visitor to the school\* :—

*The Village Home Project.*—"The children plan to build an actual house of the same materials as are used in houses in the Punjab and big enough to be played in, *i.e.*, about 5' x 4' x 3'. The construction of the house soon confronts the pupil with the need of certain skills. The length, breadth, thickness and height of the house have to be determined. This involves understanding and using certain units of measurements, *e.g.*, foot, yard, etc. As the house is made of sun-dried bricks which are made by the boys themselves, the need of counting and estimating the number of bricks required arises, and thus arithmetic begins.

From the beginning the children hear stories about the home and the desire to read these and similar stories, as well as to read, on the blackboard and elsewhere, the information necessary in carrying on their activity, leads on naturally to reading. The need for writing the various facts and figures and labelling the various prices of furniture which will be made later, leads on to the need for acquiring this skill. The plan of the house and the utensils used involve drawing, and the provision of doors and windows, gives the teacher his opportunity to teach simple hygiene, ventilation, lighting, etc. The preparation of models of the various pieces of furniture and utensils required in a house motivates the hand-work and provides ample opportunities for discussion on the food we eat, its value and quality, the materials used in the house, what it is that makes a home attractive and comfortable, etc., etc. When I visited the school in January the school session was in its eighth month and I discovered that even then the curriculum requirements for

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\* Report by the Rev. Oliver Thomas, Shillong, Assam.

the year had been covered and in arithmetic, writing, reading, composition, had been surpassed, while a number of very valuable activities had been engaged in and information obtained which the ordinary curriculum does not expect."

*The Vegetable Shop Project.*—"The main project of class IV is the Village Shop. In Moga this is not a play project, though even as play a project of this sort can be made most valuable. In Moga, however, the village shop is a reality for the boys are in charge of the shop which sells the vegetables obtained from the garden plots. In order to run the shop well the boys have had to do a great deal of investigation as to the way shops are run in the bazaar, how the goods are cared for, how bazaar accounts are kept, how profits are computed, what articles are required in a shop, how goods are ordered and conveyed and how paid for when ordered from a distance, etc., etc.

The demands of the shop have led the boys to build a mud brick house about 6' x 6' x 6', complete with a door, to serve as a place to store their goods, and business is carried on just in front of the building. The shop is opened about half-an-hour before school opens and continues open for an hour, and then is re-opened after school closes. Two boys, in turn, look after the shop each day.

Every evening boys who have vegetables to sell bring their vegetables to the shop where they are weighed and priced according to the bazaar rate which the boys find out once a week. A careful account is kept of every transaction. In one book the names of the sellers, the goods sold, the quantities and value of the vegetables, are entered. In another a similar account of the vegetables disposed of is kept. These accounts are made up at the end of the month and a statement made to the Headmaster who hands over to each boy the amount due to him. The various vegetables are sold to the school mess, the families of the teachers, married pupils and the missionaries, and if any are left unsold they are taken to the bazaar by the boys and sold there. All the sales are carried on in actual cash.

These boys get a very practical knowledge of money, of weights and measures. They are provided with ample material for most interesting arithmetical calculations which fully cover the prescribed course. The business of shop-keeping suggests innumerable topics for composition of different kinds from business letters to advertisement of wares, descriptive accounts of business life, essays on vegetables, their utility, food, value, diseases, etc., etc.

As shopkeepers, the pupils are interested in a wider world than that of the village. So geography of the outside world becomes a subject of considerable interest. Methods of transport, trade between different parts of the province and between one province and another, the varying products of different parts of the country and the reasons for the differences, are all matters of real interest.

I also noticed that these boys were keen readers. In addition to the prescribed Reader, the boys made ample use of the literature

published in the vernacular, with which the Punjab seems to be well supplied. (Lahore alone publishes four children's magazines!)

*Moga School Project.*—The boys of Class V have undertaken a study of their school from its beginning to the present date. They wanted to find out why and when and by whom the school was started, what the ideals of the founders were, and how these ideals have been developed. They are gaining an historical sense and a perspective of time which many pupils do not acquire until much later in life. Many former pupils have been called in and interviewed, and their stories compared and an attempt is being made by the class to write a history of the school that will be authentic. The class also make models of the early and present buildings. They will study the values of property and buildings and the cost of maintaining the school. They intend to make a comparative study of the hygienic conditions of the early days and the present, listing the diseases in the school, and if possible finding why certain diseases have been prevalent. They hope to list all the places in India from which pupils and visitors have come to Moga School, studying the routes of travel, mileage, cost of journeys, rivers crossed, etc., etc. As the geography of Class V is India, this work secures interest and purpose for their required study of that subject.

A large amount of practice in penmanship has been secured through writing letters for information, and recording the facts in their note books. Each pupil keeps his own Project Book, and there is also a special class project book in which various pupils who are selected by the class, write contributions. The pupil writing the best composition on the subject has the honour of copying it into the permanent class book. A large amount of arithmetic and geography has been used in measuring land and buildings and making up costs for the records.

This class is developing a loyalty to the school, and a realization of the ideals of the founders which they could get in no other way. Their study of the cost of their education will give them an appreciation of its value that we hope will lead to a deeper consecration of their lives to the service of God and their fellow men.

*Hospital Project.*—"Perhaps the most interesting and the most valuable project of all was that of Class VI, *i.e.*, the Moga Hospital (This Hospital by the way, is a remarkable institution in the charge of an Indian Assistant Surgeon, Rai Bahadur Dr. Mathra Das, who has made a name for himself throughout the Punjab and the neighbouring provinces as an eye specialist. It has accommodation for 1,400 in-patients, and in the busy season as many as 150 cataract operations per day are performed). The boys of Class VI got interested in the Hospital and were allowed to visit it and study its work. As a result they have opened a little dispensary in their own class room where under the guidance of the teacher, who formerly studied compounding, simpler ailments of the school boys are treated. The table and almirah for this dispensary were planned and made by the boys themselves. The medicines used are bought out of their pocket money, and the small contributions made to their

Dispensary Poor Box. They have made a study of common diseases and the method of treatment; they have undergone a course of First Aid; they have studied drugs, their history and the countries they come from; they have found ample material for their arithmetic and taken a keen interest in working out the percentages and averages of patients in the Moga Hospital from different parts of India, and the diseases they suffer from; and in estimating prices of drugs, etc. They have had experience in careful weighing of small quantities and in the use of liquid measures. They have written careful accounts of their work, and of what they have learnt. They have drawn excellent charts of the human body. They have drawn maps of the world showing the places the chief drugs come from and the methods of transport, and have studied the geography of these countries. The variety of nationalities represented in the Moga Hospital—Kashmiris, Pathans, Sikhs, Mohammadans, Hindus, etc., gives a splendid starting point for the study of the history of these peoples. They have searched the vernacular papers and collected the information into a book.

The day I spent in this class I found the school boys requiring treatment waiting in a queue, and one boy acting as clerk and filling in the forms, which had been prepared by the class, with the name of the patient, his disease, and the prescription given in consultation with the teacher. Another boy did the dispensing, and a third boy dealt with sores. Some of the boys were preparing patients' forms, one boy was preparing a form to record the height and weight of the class, and another was attending to the register of patients. The remainder of the class was engaged in a weekly stock taking and preparing a list of drugs to be ordered. The actual quantities required, with their cost, were written on the blackboard. The cost of the drugs required amounted to As. 12 pies 6. The teacher, thereupon, got the boys to work out by the unitary, proportion, and multiplication methods, the cost for a year at 12 annas 6 pies per week.

It was a great pleasure being in the class and seeing the keenness of the boys and the evident interest and pride they took in their work. The class room, too, reflected the interest of the boys for the walls were covered with diagrams, charts, maps, and pictures, prepared or collected by the boys.”

Other projects that have been successful in supplying motives for learning may be mentioned. The Post Office project in Class III develops great interest on the part of the pupils. Practically all the requirements of the Government Code are met by means of this project, and much additional worthwhile information and certain desirable attitudes are secured. A banking project, a postal map of India project, making a map of Ferozepur District, the raising of fowls, the study of cotton or some other special product, have all been useful projects. Motives for short projects are constantly arising. Christmas, Easter, Basant and other special days or seasons afford opportunities for pupil activities. Making toys and gifts

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\* NOTE.—The Junior Red Cross have kindly supplied much of this material.



for others, writing letters of Christmas greetings, making decorations for school, etc., are all teaching opportunities when through the boys' own purposing, planning and executing, there is created greater interest in the work of the school and the complete co-operation of the boys is won.

*Other Methods.*—All the teaching is not done by projects. Drill and memorizing are not neglected though they are made interesting and vital if possible. Formal methods are often resorted to. Teachers, here as elsewhere, show varying degrees of skill, and do not always grasp the principle or live up to the ideals. Moga is continuing to experiment with and to adopt methods based on educational psychology. Mr. McKee's investigations in the psychology of handwriting were very helpful in improving the teaching. Mr. McKee also worked out an adaptation of the story method for teaching beginning reading. Through the use of this method, all the pupils of Class I during the past three years have completed the work of the year with but one exception, and more than half of Class I pupils finish two years work and pass into Class III. Further investigations of the psychology of arithmetic and reading are planned for the improvement of our methods of teaching these subjects.

Intelligence tests are made use of in grading pupils, permitting some to advance more rapidly, and eliminating a very few who are found unable to profit by further education. Through the kind co-operation of the Department of Psychology of Forman Christian College, these tests have been administered by students trained under Dr. Rice. The test used has been Dr. Rice's Hindustani Binet-Performance Scale.

*Life and Work of the School.*—The same educational principles prevail in the general arrangements and management of the school. As in the class-room, so in the outside activities, responsibility is placed upon the boys. Each must contribute his share to the common good. The life is kept as simple as possible and close to village conditions. The boys do their own cooking, washing and mending. They care for the cattle and keep the grounds in order. The class work and the outside work are correlated. The field work is related to class studies through nature study in the Primary and agriculture in the Middle, through composition, account keeping, etc. The knowledge gained through the carrying on of village trades is made use of in the making and repairing of articles for the school or the farm, in preparing drawings of implement, etc., and in the study of village social problems.

The students themselves take a large degree of responsibility for the general management of the school. The Panchayat is the governing committee of the student body. They are elected annually by the boys from among themselves. The Panchayat handles many cases of discipline and arranges other affairs related to school life. The boys also elect a Food Committee who purchase the food, keep accounts and assign to the different boys the daily duties of cooking. Each boy gives about one day out of 20 for

cooking. There is also a Committee for Caring for the Sick, a Committee on Sanitation and Hygiene, a Committee on Lighting. The elections are democratically conducted and the boys make very wise choices. The election is preceded by discussion in the classes, on the qualities requisite for leadership.

The summer schedule of the school is as follows:—

Rising bell . . . . .	5-15 A.M.
Morning prayers . . . . .	5-45 A.M.
Classes . . . . .	6-15—8-15
Recess . . . . .	8-15—8-30
Classes . . . . .	8-30—9-30
Morning meal . . . . .	9-30—10-00
Classes . . . . .	10-00—12-00
Rest . . . . .	12-00—2-00 P.M.
Study period . . . . .	2-00—4-30
Work period . . . . .	4-30—6-00
Games and Recreations : . . . .	6-00—7-30
Evening meal . . . . .	7-30—8-00
Evening devotions in charge of pupils	8-00—8-15 .
Study period . . . . .	8-15—9-30

In the winter schedule the classes are from 10 A.M. to 3-30 P.M.

The work of the farm is largely done by students. One and a half hour a day are given by each boy to outside work. In addition, each class, from Class IV through the Middle and including the Normal, gives one full day a week to work outside of the class room. The morning of this day is given to agricultural work and at least part of the afternoon to trade work. In this way, a continual supply of labour is made available for the farm and gardens.

The School has a garden of nine acres. Each pupil from Class V up has a garden plot 35 × 35 feet. The remainder is worked as a school plot by the boys of the Primary classes under the guidance of the gardener. The school also has 36 acres of farm land, about half of which is devoted to dry farming. Class V cares for a large piece of land as a class. Each boy from Class IV up is given 1/6 of an acre of land under well irrigation. Some of the dry farming land is also given to pupils. The remainder of the land is worked by all the boys for pay at labourers' wages. The younger boys are paid wages according to their earning capacity.

The plots are worked on a project basis. Each year the agricultural instructor draws up a detailed list of the plots with the possible earnings from different products. The boys then choose the crops they wish to grow. Each boy personally is responsible for his plot, but the whole work is of course under the general supervision of the agricultural instructor. A variety of crops is grown such as wheat, maize, oats, cotton, grain, mustard, etc., together with the ordinary garden vegetables.

Boys are given definite agricultural instruction and are taught to use both the agricultural implements ordinarily in use in the

villages and improved implements suitable to the country. They are also taught the care of cattle and the securing and storing of fertilizing products.

Every boy is expected to accept the idea that no work which may be necessary for the maintenance of the life of the school is a disgrace. Each one must be ready to do any work on the farm or in the school. The dignity of labour is constantly taught. The staff set an example to the pupils by keeping gardens themselves and being willing to help also in any work that may be necessary. The graduates who return to the school point with pride to buildings they have helped to erect, trees they have planted and developments of the school in which they have shared.

The teaching of village home industries is also partly on a project basis. Our ideal is that a boy who completes the course will be able to take care of minor repairs on his home, and make and mend his clothing, and be able to teach the village community gainful occupations supplementary to their field earnings. In Class IV the boys learn to make a kurta, a pair of pajamas and a cap. In Class V they make baskets and various products from reeds (sarkanda) such as rope, screens (chicks), etc. Class VI make articles for the village home and village school, such as sun-dried bricks, doors, stools, blackboards, etc. Most of the mud plastering of the roofs of the school buildings is done by pupils. Class VII and VIII and the Normal Class learn simple iron work in order to make and repair farm tools. The Normal Class also learn book-binding and cover all the school books used, as well as do some work for other schools.

*Self-Help at Moga.*—It has always been the custom in this school for boys to contribute to the cost of their education by their labour. From an educational point of view, however, this required labour did not yield all the returns in character development which we thought possible. We have therefore introduced a new plan of self-help, which has now been in operation a year and a half. The guiding rules of the plan are as follows:—

(1) The pupils, from the youngest primary boys to the normal class pupils, handle actual money which they have earned. (2) All the boys keep account books and know where they stand financially at any time. (3) The boys are paid only *actual value* of the work done. (4) Every boy pays a definite sum monthly toward his school expenses. (5) No pocket money is given to pupils. (6) Industry is encouraged by giving to the most trustworthy pupils special jobs. (7) Pupils are not allowed to receive pocket money from outside sources.

Before inaugurating the plan, a thorough study was made of the cost of education at Moga. The estimates excluded all capital expenditure for land, buildings, etc., but included all annually recurring expenditures, as salaries of staff (including missionaries), servants, school supplies, repairs of buildings, agricultural and trade work expenses, etc. These expenses were divided among three groups of pupils, i.e., Primary, Middle and Normal, and the

cost of educating a pupil in each of these departments was calculated. From this was deducted the Government grant. It was found that each Primary pupil was costing the Mission Rs. 12 to Rs. 14 per month, each Middle pupil, about Rs. 17 per month, and each Normal pupil, about Rs. 23 per month.

A study of the actual earning power of pupils showed that there were four possible kinds of earnings, *i.e.*, (1) profits from the customary  $\frac{1}{8}$  acre of farm land, from the garden plots, 35 x 35 feet; (2) earnings from trade work; (3) earnings from general labour, as work in school gardens or school fields, repairing of school buildings, running errands, caring for cattle, etc., etc. For such work the pay was according to bazaar wages, 4 annas for eight hours' work for the smallest boys up to 10 annas for eight hours' work for the largest pupils; (4) earnings for special work like that of night watchman, care-taker of tools, etc. Each boy also earns for cooking as he takes his turn in regular order.

Part of the above study was made class-room work in arithmetic by some teachers, and pupils worked out costs, gross and net earnings of the garden and field plots. The rates for labour were fixed and made known to the boys. They are given individual cash books in which they record all items of labour and the rates, each item then being signed by the instructor or monitor in charge, or the person for whom the work is done. Even Class I Primary boys are taught to keep their accounts with a series of marks, until they learn to write well enough to keep their books in regular order. Class IV keep the account of vegetables brought by the older boys to the shop.

The older boys keep detailed accounts of the expenditures and receipts from their plots. Every field and garden plot is a pupil's individual project, undertaken on the same conditions as if rented from a land owner, and money earned is actual net profit. The boys pay to the school rent for the land, tools, and irrigation. They also pay for seeds and manure. These accounts are carefully kept both by the boys and the instructor and are balanced monthly. The following is a typical monthly account taken from the ledger of April and May 1925:—

Debit.	Rs. A. P.	Credit.	Rs. A. P.
Maize seeds . . . . .	0 4 0		
Labour (in cash) . . . . .	0 5 0		
Manure . . . . .	0 4 0		
Labour . . . . .	0 1 6		
Water rent . . . . .	0 4 3		
Land rent . . . . .	0 1 6		
Tool rent . . . . .	0 1 6		
	<hr/>		
	1 5 9		
	<hr/>		
	0 0 0		
May . . . . .		Maize Crop . . . . .	<hr/>
			0 0 0
			<hr/>
			2 0 3

From their earnings, all pupils pay school fees as follows:— Class I, II and III, Re. 1 to Re. 1-8 per month; Class IV, Rs. 3 to Rs. 4 per month; Middle Classes, Rs. 4-8 to Rs. 5 per month; and the Normal Class, Rs. 5 per month. The balance of their earnings they spend as they please. Industrious boys are able to earn a reasonable amount of spending money.

An essential feature of the scheme is that all the work of account-keeping is considered part of the class-room work in arithmetic and writing. We give a whole day, the first of the month, to the making up of accounts in the class-room. But let no one think that this is wasted time from an educational point of view. It provides the most vital teaching possible in arithmetic. We have perfect "life situations" in the class-room. The necessity for 100 per cent. accuracy in this work has greatly helped in stimulating accuracy in all the arithmetic study.

After much experimentation in the class-rooms a satisfactory form of accounts has been worked out, which saves much book-keeping. The teacher keeps the class record in this form, but the pupils do the actual reckoning.

## CLASS VII.

Name.	INCOME OF PUPIL.				EXPENDITURE.		
	Trade work.		Agricultural work.		General Labour.		Total Income.
	Rs.	a. p.	Rs.	a. p.	Rs.	a. p.	
Pupil A . . . . .	Rs.	a. p.	Rs.	a. p.	Rs.	a. p.	Rs. a. p.
	...	...	3	2 0	0	7 0	3 9 6
Pupil B . . . . .	...	...	5	14 6	0	5 6	6 3 9
	...	...	3	15 3	0	11 6	4 10 9
Pupil C . . . . .	...	...	5	7 6	0	5 6	5 13 0
	...	...	5	3 6	1	5 0	6 8 6
Pupil D . . . . .	...	...	3	12 6	1	5 0	5 1 8
	...	...	2	15 6	2	4 0	5 3 6
Pupil E . . . . .	...	...	...	...	...	...	...
	0	5 0	5	4 9	...	...	7 5 9
Pupil A . . . . .		...	...	...	...	...	...
Pupil B . . . . .		...	...	...	...	...	...
Pupil C . . . . .		...	...	...	...	...	...
Pupil D . . . . .		...	...	...	...	...	...
Pupil E . . . . .		...	...	...	...	...	...
Pupil F . . . . .		...	...	...	...	...	...
Pupil G . . . . .		...	...	...	...	...	...
Pupil H . . . . .		...	...	...	...	...	...
Pupil I . . . . .		...	...	...	...	...	...
Pupil J . . . . .		...	...	...	...	...	...
Pupil K . . . . .		...	...	...	...	...	...
Pupil L . . . . .		...	...	...	...	...	...
Pupil M . . . . .		...	...	...	...	...	...
Pupil N . . . . .		...	...	...	...	...	...
Pupil O . . . . .		...	...	...	...	...	...
Pupil P . . . . .		...	...	...	...	...	...
Pupil Q . . . . .		...	...	...	...	...	...
Pupil R . . . . .		...	...	...	...	...	...
Pupil S . . . . .		...	...	...	...	...	...
Pupil T . . . . .		...	...	...	...	...	...
Pupil U . . . . .		...	...	...	...	...	...
Pupil V . . . . .		...	...	...	...	...	...
Pupil W . . . . .		...	...	...	...	...	...
Pupil X . . . . .		...	...	...	...	...	...
Pupil Y . . . . .		...	...	...	...	...	...
Pupil Z . . . . .		...	...	...	...	...	...

## CLASS VII—continued.

Name.	ACCOUNT OF PUPIL.				BALANCE DUE PUPIL.				
	Previous Debt.	Advance during month.	New Advance.	Total Expenditure.	Balance due School.	Due pupil.	Paid Pupil.	Still due Pupil.	Remarks.
Pupil A. { October November.	Rs. a. p. ...	Rs. a. p. ...	Rs. a. p. ...	Rs. a. p. 4 8 0	Rs. a. p. 0 14 6	Rs. a. p. ..	Rs. a. p. ...	Rs. a. p. ...	
	0 14 6	...	...	5 6 6	...	0 13 0	0 13 0	...	
Pupil B. { October November.	...	...	...	4 2 0	0 1 3	...	...	...	
	0 1 3	.	...	4 13 3	...	0 15 9	0 15 9	...	
Pupil C. { October November.	...	...	..	4 12 0	...	1 12 6	1 12 6	...	
	...	...	...	4 12 0	...	0 5 6	0 5 6	...	
Pupil D. { October November.	...	...	1 0 0	6 0 0	1 0 0	0 3 6	0 3 6	...	
	1 0 0	...	...	6 0 0	...	1 5 9	1 5 9	...	

Some have feared that this system would produce a mercenary spirit in the boys. If you call it mercenary to expect pay for work you might be unfavourably impressed by the business-like manner in which the boys bring their account books to be signed for most of the work they do. But we do not call a workman mercenary when he asks pay for his work. A better test of the attitude produced by the self-help plan is, I think, to be found in the use the boys make of their money, when they are free to spend it as they please. The payments toward the pastor's fund, and other church contributions by the school, have increased as the boys gained confidence in this scheme and in their ability to pay their fees and small necessities month by month. They also give generously to outside causes. It was encouraging to see their happiness on Golden Rule Sunday, when the boys (in addition to contributions from the staff) surprised us all by subscribing Rs. 106-12-9 to Near East Relief. This all came out of their earnings. One boy stood up and said, "As this is a matter of food for these poor people, I propose that we do our cooking free for a month and pay that Rs. 45 into this fund." This was enthusiastically voted by all.

There have been difficulties. Occasionally pupils are tempted to cheat and give false accounts. A spirit of covetousness may also be shown. The influence of the teachers, and talks in the school assembly help to keep the boys straight. It must be remembered that such temptations will assail these boys in life. Their presence in the school life is an opportunity to guide and help the pupils. The conscious resisting of such temptations builds true honesty.

We have observed many excellent results from the self-help. The academic standing of the school has not suffered. Indeed the cleverest and most industrious boys in their studies, usually earn the most money, too. Willingness to work, thrift in expenditure, and the spirit of responsibility and independence are growing.

One of the students, at the end of the school year, gave the following estimate of the value of self-help:—

- (1) We have found that learning (*tahlim*) and work (*kam*) are one. Life is not only reading books but also learning to take care of yourself.
- (2) By this work we learn to appreciate what our parents have done in providing for us.
- (3) By work we become strong in body and are then more able to work whole-heartedly for Christ.
- (4) A hand-working man honours other men who work hard and is honoured by them too.
- (5) In India nine out of ten men work in the fields for a living. We cannot be in real sympathy with the majority of our fellow Indians until we know how to work in the fields.
- (6) Since earning my own money and paying fees I feel more honour and self-respect. I think all the boys feel



way. When we had the opportunity to give to the Near East Relief we were proud that we could give money which we had earned ourselves.

*The Normal Course.*—The culmination of the training is found in the normal course. The course covers one year, but is very thorough. The following is the syllabus:—

Observation and Practice of Teaching.

Principles of Teaching.

Child Psychology.

Methods of Teaching Reading, Writing, Arithmetic, Hygiene, Geography, etc.

Rural Social Problems.

Religious Education.

Agriculture.

Village Home Industries.

Village School Management.

This scheme, though departing considerably from the Government curriculum, has been approved by the Department of Education.

All the courses studied by the Normal Class are based upon a simplified but thorough study of the applications of psychology to teaching method. Students are trained in the observation and study of children and are helped to determine the general principles of teaching from their own observation and practice. The practice of teaching is stressed throughout the year. The students do a large amount of independent reading, and learn to think and plan, rather than slavishly follow a mechanical routine.

One of the most interesting subjects in this course is that on social problems, which includes a study of the various problems of the Indian village, economic, physical, social, educational, moral and spiritual. Methods of helping in the solution of these problems, the place of the school as a community centre, the ways in which the teacher can help to uplift the village, co-operative societies, their organization and value, etc., are studied, and students are taken out to study actual conditions in the villages round about and to suggest methods of improvement. In this way the students are prepared for moral leadership.

The observation of village conditions and actual practice in schools is considered the most necessary and valuable part of the year's work. For in addition to the observation and practice of teaching in the practising school the students begin early in the year to make a study of educational conditions in village communities. Groups are taken regularly to village schools within motoring distance, to make a survey and report to the class. These reports were made the basis of class discussions. Near the end of the year of training the entire class are taken into the heart of a mass move-

ment district, where they live for two weeks, organizing and maintaining new schools, teaching in established schools, beginning community work, and carrying on their studies and class discussions on the basis of their experience.

*Religious Instruction.*—The education given at Moga is definitely religious. In his recent careful study of "The Education of India," Mr. Maylew states his conviction that "Indian personality and life, as a whole, will not intimately be affected by an education which is not animated by religion." In so far as Moga is succeeding in its ideals, it is producing results in Christian character and personality.

The whole school is pervaded by a religious atmosphere and religious education is made the main aim of all teaching. Religious teaching is not conceived of as a separate subject of instruction, divided from so-called "secular" education. All the activities and teaching of the school contribute to practical religious education. Right conduct is emphasized as the goal of all the school work. Class projects, co-operative enterprises, field and trade work, community service, etc., are means used in the development of Christian character. In addition, a definite course of religious training is given, which aims (1) to develop the devotional life of the pupils, (2) to teach the essential habits of the Christian life, (3) to secure a thorough knowledge of the Bible. The emphasis of this instruction is upon growth through experience, and projects are often used in the Bible class.

In the school life, the Christian spirit finds expression in many ways. The boys are taught to serve. They help each other, and they learn to help the community. Every Sunday eight or nine groups of students go out to nearby villages carrying inspiration from the school to the wider community, through conducting Christian services and Sunday Schools.

The school strives to enter helpfully into the life of the Moga community. The Headmaster is a member of the Municipal Committee, and is heartily interested in community affairs. During the two weeks that the Normal class spends in the village, practical training in community service is a regular part of their course. This community spirit has recently found expression in a project undertaken by the staff and the pupils. They have opened a school for the depressed classes in the village of Old Moga. Months of preparatory work were required before the people were roused to desire a school. The school is taught by volunteers from the Normal Class and supervised by a committee of teachers. It is planned to secure a regular teacher. The staff and pupils propose to raise the funds among themselves for the support of this school.

*Extension Work.*—The Training School for Village Teachers is central in the Punjab Mission's plan for village education. The inspectors of the village school system come to Moga between tours for advice and instruction. They demonstrate in the village schools under their care the new methods learned at the training school. A

Village Teachers' Institute is held annually at Moga for two weeks. Refresher courses are given, and reports are heard of experiences with the improved methods in the village schools. The majority of these Mission village schools are staffed with Moga-trained men. Three-fourths of these schools use the Moga method of teaching beginning reading, and about forty per cent. make some use of the project method.

The Moga School is frequently called upon to help by giving special demonstrations of new methods. In 1924, Mr. McKee gave a four months' course in English to a group of educationalists from various parts of India. There are now many training schools and village schools carrying on fruitful experiments in rural education. The help and interest of these educational leaders who are co-operating with us have been large factors in the measure of success the school has attained.

The Village Teacher's Journal is published at Moga in English and Urdu editions. Five other vernacular editions are published in different parts of India. This paper is a clearing house for new methods, and records successful experiments being carried out in village day and boarding schools, and normal training institutions. The vernacular editions keep the village teachers alert to new ideas, and offer suggestive plans to be tried out. There are 700 copies printed in English and 600 in Urdu. Many of the subscribers are Government educational officers, and one District Inspector is supplying the journal to all District Board schools.

The Moga school lays no claim to the discovery of the way of success in rural education. It strives to maintain the experimental attitude, which learns from failures as well as from success. In many respects, the school has not succeeded in living up to the spirit of its own ideals. Only a small beginning has been made in evolving a curriculum and methods in reading and arithmetic fitted to the environment and the mental processes of Indian boys, and based upon psychological research. Moga has so far not succeeded in making use of the cultural heritage of India in the education of these boys. The teaching of Indian music and art, the development of more reading material from Indian literature have not yet been attempted. However, in so far as the school has succeeded in using the natural activities and interests of village boys as the basis of the curriculum, and in using the principle of learning by doing as the basis of method, it has secured results in vitality and interest in school work, independence and initiative in thinking, and self-reliance and willingness to serve.

## THE MEDICAL INSPECTION OF SCHOOL CHILDREN AT SIMLA.

A feeling of dismay is occasioned by the present neglected position of school medical inspection generally in India. This important class of medical work has now been undertaken in Simla, the summer capital of India, by the introduction of a well framed scheme.

Prior to September 1923, this work was not considered one of the duties of the Medical Officer of Health, and no kind of system existed. Simla, with its season population of over 40,000 collected within a restricted area, is perhaps particularly well situated for work of this nature.

With the introduction of the scheme in September 1923, the services of the Municipal Health Department Sub-Assistant Surgeon were utilized. In addition to his other duties, he acted in the capacity of School Medical Inspector, his work being closely supervised by the writer. At first the scheme was confined to the ten primary boys' schools, which schools receive grants-in-aid from the Simla Municipality. The scheme embodies:—

1. A monthly medical inspection of each boy, with a view to the prevention and cure of disease.
2. The assured treatment of affected children.
3. A quarterly report of the above results.
4. A monthly inspection of school premises, followed by a separate report.

*The monthly medical inspections.*—These are carried out at the school premises. Each boy in every school is examined once per month during the school-year (March to December). These examinations are not mere cursory glances, but consist of a systematic over-hauling of each child. The inspection is made by classes, so that the routine work of the school is not interfered with. Each class master attends while his boys are being inspected, in this way he receives instruction in the elements of the examination. The boys are paraded in batches of five or six, stripped ready for inspection. Each boy passes before the Medical Inspector, who first notes the name of the boy, the name of the parent and his occupation, height, weight, chest measurements, general physique, previous illness and family history.

At subsequent examinations, height, weight, chest measurement and general physique are recorded each quarter.

The boy is next rapidly examined from the crown of his head to the soles of his feet. Special attention is paid to cleanliness, skin diseases, ear diseases, deafness, eye diseases, dental diseases, oral sepsis and mental capacity. Following the examination the record for each boy is entered on an index-card. Each boy has his corresponding index card. The index cards are so prepared that each

shows the complete monthly medical record of the child, extending over a period of six years, further the minimum amount of writing is required for the entries. These are made by figures or by a *plus*, or *minus* sign.

An average of two to three minutes is spent on the examination of each child, but at subsequent monthly inspections the healthy children become personally known to the examiner, and are rapidly passed over, while more time is devoted to boys who do not show sufficiently quick improvement under treatment.

*The treatment of affected children.*—This is the crux of school medical work. In Simla, treatment is divided under two headings:—

1. Those boys requiring minor attention such as lack of a bath, requiring a hair cut, teeth cleaning, attention to dirty finger nails, poor physique, etc.
2. Those boys requiring definite medical attention.

For boys falling under the first heading, the class master prepares a list, at the time of inspection, under the direction of the Examiner. This list shows the name of the boy, the affection and the required treatment. It is presented to the headmaster after the examination of the school is completed and he is responsible that these children receive the required treatment before the next monthly inspection. Headmasters guard these lists very carefully and experience shows that action is taken on the recommendations made.

For boys falling under the second heading, a postcard with perforated margin printed in vernacular, is issued to the parents of the child stating whether the child requires treatment at the hospital. These post-cards are prepared from the index-cards at the time of the examination. Acknowledgments of the post-card is received by means of the return to the school of the perforated margin. These are subsequently checked.

On the card the parent is advised that the child has been examined and found to be suffering from a defect and stating the required action. A treat is made clear on the card to the effect that if the child is not medically treated, recommendation for its exclusion from the school will be made to the school authorities, until such time as the child is treated. This post-card is then presented by the parent or by the child itself at the hospital or to a private doctor, who treats the child and notes on the post-card the treatment given. These cards are collected from the hospital and private doctors in Simla at the end of each month, classified according to schools, and the number so collected forms a check on the number of children who have actually received medical treatment. At subsequent examinations, should children be found to require continued treatment, a second post-card, called "Continued Treatment Card" is issued to the parent, such cards are recollected and checked in a similar manner to those as above described.

The treatment recommended for each boy is entered on his index-card at the time of the monthly examination by a *plus* sign. At

subsequent inspections, the examiner sees whether the child has, or has not received treatment and he records this on the child's index-card by either a *plus* or *minus* sign. In the latter case he makes close enquiries why the child did not receive the treatment recommended at the previous month's examination.

*Report on the results of the inspections.*—At the end of each school-quarter, a report is compiled from the index-cards, and these results are embodied in a very comprehensive chart.

These results indicate, under the heading of each school:—

1. The number of children examined.
2. The number of children recommended for treatment.
3. The number of children who actually received treatment.
4. The diseases from which the children were found to be suffering.
5. General remarks on the general health of the boys.

At the end of each school-year, the Medical Officer of Health examines each child's index-card, and from the contained results, he enters his note on the last page of the index-card. This note briefly states the progress or otherwise in the health of the child during the year. This also forms a check on the work executed by the School Medical Inspector.

*Inspection and report on the school premises.*—Such inspections are made by the School Medical Inspector once per month, and are checked by the Medical Officer of Health once during each school-quarter. The results of such inspections are recorded on a quarterly chart, which chart is similar to that used by the Liverpool Corporation. Details of the sanitary condition of each school, with recommendations for improvement of defects are embodied on the chart. These recommendations are repeated each quarter until action has been taken to remedy the defects. In this way many improvements at the schools have been effected.

*Further details and advantages of the system.*—(1) *Eye-sight.*—Those children found, on examination to be suffering from defective vision, are carefully re-examined at the eye department of Messrs. Walter Bushnell, Occulists, Simla, and the necessary spectacles are prescribed. This reliable firm of oculists supply the spectacles at reduced rates. The Municipal Committee has allotted a grant of Rs. 500 to provide spectacles for children whose parents are too poor to buy them. In such cases, the free or part free provision of glasses for the children is ensured, but the merits of each case are carefully enquired into, before such free or part free spectacles are given.

(2) *Dental caries.*—An arrangement has been made with three private dentists of the town, whereby children requiring dental treatment are given the choice of attending one of these three dentists, who carry out the work at reduced rates.

(3) *Vaccination against small-pox, and early isolation of infectious cases.*—Children found either un-vaccinated or requiring re-vaccination are immediately vaccinated by the Municipal Vacci-

nator. A striking example of the advantage of frequent inspecting was evidenced in June 1925, when one child was found to be suffering from a modified attack of small-pox. The child was removed from the school direct to the Isolation Hospital and the whole school was re-vaccinated. No further cases of small-pox occurred in the school.

(4) *The general cleanliness of boys.*—At each school a daily inspection is made by the masters; and class marks are awarded. These marks are recorded in a ledger kept at each school. At the end of each school-year the Municipal Committee grant prizes for cleanliness. The regular monthly inspections add an extra stimulus to both boys and masters.

(5) *Goitre.*—This disease is common amongst children in the Simla hills and so routine treatment for the complaint is ensured by regular examination.

(6) *Tonsils and adenoids.*—Early treatment for these defects necessarily ensures an improvement in general physique.

(7) *Educational posters.*—These have been printed in English and vernacular and are hung in the class rooms. Masters utilize these posters for instruction of the boys by the construction of essays, etc.

(8) *Lectures; Cinema performances and plays.*—The Simla Municipality possesses an up-to-date Lecture Hall presented by Her Excellency the Countess of Reading. This hall is known as the "Lady Reading Lecture Hall" and it is a part of the Infant Welfare Centre. It is fitted with the latest model Pathé Cinema and lantern projector which was presented by Mr. Jehangir Madan of Calcutta, and it is also fitted with a stage.

Regular weekly educational lectures, cinema pictures and plays are staged for the school children, who eagerly attend.

By this means, the simple principles of hygiene and knowledge concerning communicable diseases is imparted not only to the boys, but also to the masters.

Such educational activities are found to be of the greatest value.

(9) *Open-air-classes.*—Such classes are regularly held at each school and debilitated children are especially dealt with.

(10) *Drill exercises.*—At the larger schools, the drill master holds regular classes. At the smaller schools the head-masters undertake the regular drilling of the boys.

(11) *Invitations to parents.*—Parents are invited to attend and see the medical inspection of their children as is done in the West.

(12) *Extension of the system to the Indian Hill States surrounding Simla.*—By agreement with the Superintendent, Hill States, this system has been extended to the Indian States immediately surrounding Simla, and special progress has been made by the Bhujji, Koti and Baghal States. The State Doctors make the inspections and regular reports are submitted.

(13) *Co-operation between School work and Infant Welfare work.*

—All boys and young children attending the Infant Welfare Centre clinics are card-indexed. In course of time, these cards will pass to the schools. Thus a complete medical record of the child will be kept from birth up to the school leaving age.

*Results of the work for the period from September 1923 to December 1925.*

(Results for 1926 are not included as these have not yet been completed.)

For the first quarter ending December 1923, following the introduction of the scheme for the ten primary boys' schools, 67.9 per cent. of children were recommended for some form of treatment, while during the quarter ending December 1924, this figure had been reduced to 33.08 per cent.

For the first quarter ending December 1923, out of those children recommended for hospital treatment 45.9 per cent. actually received treatment, while during the quarter ending December 1924, this figure was 86.03 per cent. Thus after a brief period of 15 months one can readily appreciate that disease incidence amongst these children had been steadily reduced, the cause of this decrease being undoubtedly due to the ensured treatment of the children.

The Municipal Sub-Assistant Surgeon at that time was also in charge of the Infectious Diseases Hospital, consequently at the time of an infectious disease outbreak, such as small-pox, school inspections had to be suspended. This occurred during April and May of 1924 and again in April and May 1925.

Partly on this account, but chiefly because of the success of the scheme for boys attending the Primary classes, the Municipal Committee approached the Punjab Government in March 1925, and recommended that Government may be pleased to extend the system to the classes of all the schools in Simla and to include boys of all standards up to the school leaving age. For this purpose, the Municipality recommended the appointment by Government of a whole-time Sub-Assistant Surgeon to act as School Medical Inspector at Simla. The Punjab Government accepted the recommendations of the Municipality and in early June 1925, a Sub-Assistant Surgeon was appointed to work under the direct supervision of the writer.

From this time 2,270 boys came under supervision. Of these 81 per cent. were at first referred for treatment. 80 per cent. of those referred for treatment received it and in December 1925 the percentage referred for treatment had been reduced to 30 per cent.

*Height, weights, chest measurements and general physique.*—No statistics have ever been compiled in regard to height, weight, chest measurements and general physique for Indian school children.

Such averages for the Indian school child, of all ages at Simla have been compiled.



At six years of age, the average height of the English school child is 3 feet 8 inches, the Simla child is now 3 feet 7·2 inches. The average weight of the English school child is 3 stones 2½ lbs., the Simla child is now 2 stones 13·1 lbs. (*i.e.*, 3·4 lbs. lighter).

The Simla boy now has a chest measurement in expiration of 21·5 inches and in inspiration of 22·2 inches.

At this age 19 per cent. of boys are now of good physique and 81 per cent. of fair physique.

The Simla child maintains a similar height to the English child, up to the age of 14 years. In weight he is generally less throughout the ages. The Simla child reaches half his adult weight at 12 years of age, similar to an English child.

*Defective Vision.*—On examination, 4·1 per cent. Simla children were found suffering from defective vision. All these cases have been corrected with spectacles.

In England and Wales, it is estimated that 10 per cent. of children suffer from visual defects.

In England, difficulty is experienced, in ensuring that children suffering from defective vision will wear their glasses. I have not experienced this difficulty at Simla.

*Dental caries.*—11·4 per cent. of children at Simla, require dental treatment, of these, 0·7 per cent. have 4 or more carious teeth. In England and Wales, no less than 54·6 per cent. of children examined, suffer from dental caries and a large proportion of these have 4 or more decayed teeth.

*Tonsils and Adenoids.*—At Simla, 51·3 per cent. of children were found suffering from enlarged tonsils and adenoids. By treatment this has been reduced to 7·9 per cent. Those remaining now, require operative treatment. Children between the ages of 7 and 12 were mostly affected, and Hindoo children suffered more than Moham-medans and others.

2·8 per cent. of those suffering were mouth-breathers, and 0·2 per cent. had accompanying defective hearing.

It has been recently stated, that 37 per cent. of London School children have adenoids and that 72 to 76 per cent. have enlarged tonsils as well.

*Vaccination against small-pox.*—Not a single school child at Simla escapes vaccination against small-pox. This is a striking comparison with England and Wales, where at least 50 per cent. are unprotected against this disease.

*Goitre.*—By means of the Iodine treatment, the percentage of Goitre cases has been reduced at Simla from 2·5 per cent. to 1·5 per cent. In Berne, Switzerland, it is stated, that in 1881, 80 to 90 per cent. of school children suffered from Goitre. In Western Virginia 9 per cent. are goitreous and in Washington 18 per cent. McClarrison writes, 20 per cent. of the population in the Himalayas suffer from Goitre.

*Malaria*.—During 1925 only 4 cases of Malaria were recorded. These were relapse cases. By means of adequate treatment, enlarged spleen incidence has been reduced from 16.4 per cent. to 0.3 per cent.

Anæmia has been reduced from 15 per cent. to *nil*.

*Uncleanliness and skin diseases*.—2.8 per cent. of children were found suffering from actual skin diseases, which by treatment was reduced to 1.7 per cent.

In addition 26 per cent. were found unclean, which figure was reduced to 6.4 per cent.

The general state of the Simla school child in regard to cleanliness, is now very good.

In England and Wales, it is estimated that 16 per cent. of children suffer from verminous conditions of head and body, 9 per cent. from scabies and 10 per cent. from other skin diseases.

*Ear diseases and defective hearing*.—2.7 per cent. suffered from ear diseases and defective hearing, by treatment this figure has been reduced to 0.55 per cent. It is estimated that about 2 per cent. of children in England and Wales suffer from these conditions.

*Girl Schools*.—During 1926, the system has been extended to all the girls' schools at Simla. This work is voluntarily carried out by one of the Lady Doctors of the town and in consequence it is regretted the examinations have not been as regular as in the case of the boys' schools.

To ensure the success of a system, such as that described above, strict supervision is undoubtedly necessary.

One argument against the introduction of such a system for a large city in India is that the large numbers of children would necessarily entail the employment of a costly inspecting staff. From the writer's experience, one intelligent doctor could readily handle 5,000 boys, provided the schools are not too scattered.

Others say that as education is not generally considered compulsory, therefore only a small proportion of the children of school going age would be dealt with.

From a recent census taken at Simla, it is estimated that, with the exception of about 60 boys, all children between the ages of 6 and 11 years attend school.

The Simla Municipal Committee has approached Government, and has recommended that primary education may be made compulsory at Simla.

It is further estimated, that 63.2 per cent. of all boys of school going ages, up to 18 years, attend at Simla.

In consequence, the above system at Simla now deals with practically all boys between 6 and 11 years and the greater proportion of boys of other ages up to 18 years of age.

In conclusion therefore it may be said, that although a feeling of dismay exists generally in India on account of the present neglected position of this work, yet the Simla Municipality congratulates itself that school medical inspection for boys at Simla is equal to that of any town in the West.

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### Miscellaneous Reports.

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